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# USSR Report

MILITARY AFFAIRS

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26 March 1985

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MILITARY SCIENCE

KRASNAYA ZVEZDA REVIEW OF GAREYEV BOOK ON M. V. FRUNZE

Moscow KRASNAYA ZVEZDA in Russian 19 Feb 85 p 2

[Review by Army Gen P. Lushev, troop commander, Order of Lenin Moscow Military District, of book "M. V. Frunze--Voyennyy teoretik" [M. V. Frunze--Military Theoretician] by M. Gareyev, Voenizdat, 1985, 448 pages, price 2 rubles 10 kopecks]

[Text] Yet another book devoted to an outstanding Soviet troop commander and prominent party and state official, M. V. Frunze, the 100th anniversary of the birth of whom was just celebrated by our country, has been published.

Mikhail Vasil'yevich Frunze entered history as the greatest Soviet military theoretician as well. He left behind a rich legacy of military theory. He wrote over 200 theoretical works. The value of these works, which have entered the gold fund of Soviet military science, lies in the fact that they generalize the combat experience of the young republic's armed forces and describe the practical aspects of their construction in the most difficult initial years of development of Soviet rule. They were written on the basis of Marxism-Leninism, and they are permeated with a high party spirit.

Many books and pamphlets have been devoted to M. V. Frunze. They illuminate his revolutionary, party, state and military command activities. But none of them have yet generalized research examining all aspects of his legacy of military theory. The book by doctor of military sciences, Colonel General M. Gareyev, "M. V. Frunze--Military Theoretician," fills this gap to a certain extent. It thoroughly and rather completely reveals the military theoretical activity of the proletarian troop commander, his role in developing Soviet doctrine and the most important premises of Soviet military science, and the significance of his legacy of military theory to modern times.

It is noteworthy that the author does not simply describe the viewpoints of M. V. Frunze. He persuasively analyzes, with good scientific grounds, exactly what new things Mikhail Vasil'yevich contributed to a given area of military theory, and the directions in which his basic premises of military doctrine and military science developed in the future. This approach makes it possible to reveal more fully the role and significance of M. V. Frunze's legacy of military theory, which permits substantiated solution of the modern problems of military theory and practice.

The book begins with what might be called a biographical chapter. But this is not just the typical life story. It focuses primarily on the circumstances which promoted formation of M. V. Frunze as a troop commander and military theoretician.

M. V. Frunze did not live a long life--40 years. But all of his conscious life was a time of feverish activity. He participated in three Russian revolutions and in the civil war, and he was an active organizer of the Red Army and Navy during the years of peaceful construction. In other words the bulk of his life passed in a time in which, as V. I. Lenin pointed out, every month of work and experience "was worth 10 or even 20 years of our history."

The book comprehensively explains M. V. Frunze's struggle to assert Marxist-Leninist ideology and methodology in military affairs, and to develop the principles of Soviet military doctrine and military science. The range of his interests and scientific research was extremely wide. Relying upon the highly rich experience of the past, he correctly determined the trends of the present and the prospects of the future development of military thought and practice. He is credited with a number of valuable premises concerning the Marxist-Leninist teaching on war and the army.

M. V. Frunze viewed Marxist-Leninist theory as a powerful ideological weapon, as a source of the indestructible power and the invincibility of the army of the socialist state, as a truly scientific method of solving important military problems. He was a passionate propagandist of the military-theoretical legacy of Marx, Engels and Lenin. Mikhail Vasil'yevich demanded that our military executives "be armed not only with military but also political and economic knowledge, since all of this is now intertwined into a single whole, and without knowledge in these areas, one cannot lead the army successfully."

Marxism-Leninism provides a correct and the fullest understanding of the essence, nature and features of wars in the modern era, and of the problems of military construction, the art of war and armed forces training. It is a dependable compass to be used in solving important problems of military theory and practice. We discern the power and vitality of Soviet military science primarily in its faithfulness to Marxism-Leninism and in creative application of its premises in all military activity.

Speaking at the June (1983) CPSU Central Committee Plenum, Comrade K. U. Chernenko emphasized that the most important thing in the social sciences "is to continually seek revolutionary theory as a guide, to competently apply the tested Marxist-Leninist methodology of scientific enquiry." This also pertains fully to our military theory.

Analysis of the viewpoints of M. V. Frunze on the most important problems of military theory in a close relationship with modern problems occupies a significant place in the book. It emphasizes with all persuasiveness that the experience of history, and especially the Great Patriotic War, confirmed the correctness of Lenin's premise--so persistently defended by M. V. Frunze--that war, being a continuation of policy by violent means, is not only a collision of armed forces but also a struggle in politics, economics, ideology and diplomacy.

The problems of military science, to which M. V. Frunze devoted persistent attention, are analyzed in detail in the book.

On many occasions M. V. Frunze emphasized the need for maintaining a single viewpoint upon construction of the armed forces and the means of armed conflict, and upon the importance of coordinating the actions of the Red Army and Navy. These premises are acquiring special importance today. In today's conditions coordinated actions by different branches of the armed forces on the basis of a single plan of strategic leadership have decisive significance.

The book by Colonel General M. Gareyev properly brings up the point that in a situation where different areas of knowledge are being subdivided and specialized continuously in the different branches of the armed forces, arms and services, the interests of their integrated and coordinated analysis require unified and integral examination of all problems of military science.

M. V. Frunze's premise that the troops must be taught the methods of executing diverse missions which they would encounter in a time of war still remains accurate today in operational art and tactics. In this case the main attention should be devoted to active and decisive operations in the offensive, while avoiding understatement of the power of defense.

In all of his activities M. V. Frunze based himself on Lenin's premise that leadership by the Communist Party is the basic foundation of development of the Red Army. The proletarian troop commander perceptively realized that deep devotion of the personnel to the Communist Party and unfailing adherence to its ideals, its discipline and its steadfastness is an indispensable prerequisite of the strength of the army and navy and their combat capability. The leading role played by the CPSU in the entire effort to strengthen the country's defenses is continuing to increase in the time of developed socialism.

The important tasks facing Soviet soldiers obligate us to persistently raise the quality of combat and political training and to reinforce military discipline. Purposeful party-political work and greater activity on the part of CPSU and Komsomol organizations in the army and navy acquire great significance in this regard.

Basing himself on the Leninist ideas and viewpoints held by M. V. Frunze, the author brings up the point that we must rely more fully on military science and try to achieve closer unity between theory and practice in military development and troop training.

The military-technical revolution of recent years has elicited fundamental qualitative changes in the organization and equipment of the army and navy, in the development of the art of war and in all areas of military affairs. Our army and navy, Soviet military science and Soviet art of war have absorbed all prior military experience. And the military-theoretical legacy of M. V. Frunze has unfading significance to us. Its study will promote fuller solution of the problems facing Soviet soldiers.

The book by Colonel General M. Gareyev makes it possible to evaluate more fully the significance of M. V. Frunze's military-theoretical legacy today,

and his role in developing Soviet military doctrine and the most important premises of Soviet military science. It will promote further enquiry and scientifically substantiated determination of the prospects for development of modern military theory and practice.

The defensive nature of our military doctrine presupposes, and does not exclude, high combat readiness for retaliation and active decisive operations, if an aggressor ever attacks us.

As was pointed out by CPSU Central Committee general secretary, Chairman of the Presidium of the USSR Supreme Soviet K. U. Chernenko, the complex international situation "compels us to devote the most serious attention to strengthening the country's defenses. The Soviet people want not an increase in arms but their reduction on both sides. But we are obligated to show concern for adequate security of our country, its friends and allies. And this is what is being done. And let all be aware that no proponents of military adventures will ever catch us unawares, no potential aggressor could hope to avoid annihilatory retaliation."

Under the guidance of the Communist Party the Soviet people have embarked upon the final year of the 11th Five-Year Plan, and they are preparing to meet the 40th anniversary of the Great Victory and the 27th CPSU Congress with great enthusiasm in labor. The Soviet Armed Forces are also preparing for these historic events. Honorably continuing the revolutionary and combat traditions of the Leninist Guard of military officials, soldiers of the army and navy are doing everything they can in close cooperation with fraternal armies to insure the security of our great socialist motherland and the entire fraternity of socialist countries.

11004

CSO: 1801/159



MILITARY SCIENCE

PRAVDA REVIEW OF GAREYEV BOOK ON M. V. FRUNZE

PM281425 Moscow PRAVDA in Russian 26 Feb 85 first edition p 3

[Review by Academician B. Kedrov under the rubric "Along Books": "Major Military Thinker"]

[Text] It is the centenary of the birth of M. V. Frunze--ardent revolutionary, faithful pupil and comrade in arms of V. I. Lenin, outstanding Soviet military leader, and one of the active builders of the Soviet Armed Forces.

At this time I recall one of M. V. Frunze's speeches on questions of building the Red Army, which I heard in 1924. It was a pithy and vivid speech. Subsequently I read with keen interest the works of M. V. Frunze and books devoted to his life and activity. More than 220 books and pamphlets have been written about him. But so far there has not been one which has examined M. V. Frunze's military-theoretical views in their entirety.

The scientific community has greeted with great satisfaction the publication of the book by doctor of military sciences Colonel General M. A. Gareyev entitled "M. V. Frunze--military theoretician" ["M. V. Frunze--Voyennyy Teoretik"] Moscow, Military Literature Publishing House, 1985.

The author analyzes the views which existed on the main military-theoretical questions and the contribution which M. V. Frunze made to their elaboration, and shows how they have stood the test of time and in which directions they have been further developed.

In the work under review M. V. Frunze appears as a major military thinker, the value of whose scientific works is determined by the fact that they are created on the basis of Marxism-Leninism and imbued with a spirit of party-mindedness.

M. V. Frunze's role in elaborating Soviet military doctrine is very great. On the basis of Leninist precepts he defined its essence, provided a genuinely scientific definition, and revealed its structure. For the first time in the history of military-theoretical thought M. V. Frunze highlighted two interconnected aspects in doctrine: the political and the military-technical aspects. In the dialectical unity of these aspects he gave preeminence to the political aspect. He stressed that military doctrine must arise from the domestic and foreign policy of the party and state, must be common to all

party, state, and public organizations and the armed forces, and must accord with the economic, scientific and technical, moral-political, and military of the socialist state.

M. V. Frunze upheld the idea of the nationwide nature of the defense of the socialist fatherland, the increased role of the rear services in modern warfare, and the need for active participation by all party, state and public organizations in the cause of strengthening the country's defense. In his practical and theoretical activity M. V. Frunze proceeded from the Leninist precept that the main foundation of Soviet military building is leadership by the Communist Party.

Revealing the nature of Soviet military doctrine, M. V. Frunze stressed that it is defensive in nature in accordance with the peace-loving policy of our party and the Soviet state. At the same time he noted that if we are attacked the Red Army will act vigorously and resolutely. This remains our military doctrine in contemporary conditions too.

The book examines in great detail M. V. Frunze's contribution to the development of Soviet military science. The author has revealed his views in the most important problems of military art, primarily the problems of the military-strategic nature of a future war, building of the armed forces, and military training and education.

The whole of accumulated historical experience and especially the great patriotic war convincingly confirmed the correctness of the Leninist precept--which M. V. Frunze defended to persistently--that war, as a continuation of policy by forcible means, constitutes not only a confrontation of armed forces but also a continuation of the struggle in the sphere of politics, economics, ideology and diplomacy.

In accordance with this, M. A. Gareyev proposes a new classification of the system of scientific knowledge of war and the army. This consists of:

1) Marxist-Leninist teaching on war and the army embracing the relevant knowledge of all three components of Marxism-Leninism; 2) military science, while studies the problems of armed struggle and military problems of the social, natural and technical sciences; 3) the branches of science dealing with methods of conducting economic, ideological, diplomatic and other forms of struggle.

M. V. Frunze, the author notes, is rightly considered to be the initiator of military-scientific work in the Soviet Armed Forces. The principles and forms and methods of leadership of military-scientific work he elaborated have not lost their significance even today.

In today's complex international situation, when the threat of war from imperialism is growing, M. V. Frunze's words still sound topical: "One of the most reliable guarantees of peace is not just our peace-loving policy, but also the strong and mighty Red Army. The stronger our Red Army strike force is, the more reason our union's workers and peasants will have to be confident that their peaceful labor will not be destroyed, and the fewer people keen to meddle in our internal affairs there will be."

ARMED FORCES

NIGHT HELICOPTER ATTACK DESCRIBED

Moscow KRASNAYA ZVEZDA in Russian 1 Feb 85 p 1

[Article by Major V. Usol'tsev: "Night Attack"]

[Text] Deputy commander of the aviation regiment Military Pilot 1st Class Lieutenant Colonel G. Galimov looked around at the assembled pilots with a quick glance.

"Today we have a special mission. We are assaulting the target from various directions and we are attacking at night."

The night was remarkably dark and stars were like dust against a background of the night's black velvet. I was flying as part of Galimov's crew and the cockpit was alit with red light from numerous instruments. I carefully watched the actions of the crew's commander. Lean, on earth usually spare in his movements, Gayaz Sharipovich smoothly guides the helicopter. He is calm and sure of himself. And this confidence is transmitted to his crew.

On the right is the helicopter piloted by Major A. Ignatov. Regardless of how the flight characteristics of the lead helicopter change, he is literally tied to it by an invisible thread, holding exactly to his place in the formation.

The powerful engines carrying the combat vehicles farther and farther from the airport drone evenly. From time to time rough air shakes the helicopter. And then the sensitive needles of the instruments quiver. Lieutenant Colonel Galimov reestablishes the assigned flight characteristics with two or three hardly noticeable movements of the controls. Suddenly the wind direction changed. Pilot-navigator Captain N. Yermoshin illuminates his map with a "little mouse" as the portable lamp is called, as he checks them against the lighted reference points of the settlements that are sailing past below him. He immediately noticed the drift and quickly input the correction to the course.

Today's flight was under radio silence. Using a conventional movement of a helicopter in the air Lieutenant Colonel Galimov gave the signal: "Attention!" A little time lapsed and another signal: "Begin the maneuver".



Now the most critical time in the flight is at hand. On-board weapons are prepared for battle. Right on course -- the target lights.

"311th -- attack!" The command cuts the silence of the airwaves.

The helicopter, after barely shaking, soars upward, completing a vertical climb.

"Launch!"

The compound helicopter shook. Ears feel stuffed from the thunder. Rockets rush toward the earth like fiery comets.

With a drastic maneuver Gayaz Sharipovich takes the aircraft from its combat course, quickly beginning to set up the run for the next attack. But I follow the rockets heading toward the earth. And brilliant splashes illuminate the night's darkness at the exact location where the targets were located.

We attack and begin the return trip.

12511

CSO: 1801/150

ARMED FORCES

WW II CAMOUFLAGE USED IN RECENT EXERCISE

Moscow KRASNAYA ZVEZDA in Russian 1 Feb 85 p 1

[Article by Captain Yu. Klenov, Red Banner Belorussian Military District:  
"Camouflage Platoon Personnel"]

[Text] Since the beginning of the Great Patriotic War our forces have skillfully used diverse methods and means of camouflage on a large scale. Many of these are contained in the "Al'bom Lozhnykh Sooruzheniy i Maketov Material'noy Chasti Diya Zimnikh Usloviy" [Album of Dummy Structures and Equipment Mock-ups For Winter Conditions] prepared by the Headquarters of the Western Front Engineer Forces in 1942.

Individual front line methods given in the album were used creatively in a recent tactical exercise by the personnel of the camouflage platoon commanded by Senior Lieutenant S. Mikhaylov.

During the exercise tank crew members had to advance into a different area. The combat vehicles were in a forest, reliably camouflaged against enemy land and aerial observation with vertical and horizontal camouflage netting. Mats made from improvised materials reduced thermal radiation from the running engines. Before movement started, camouflage platoon personnel helped soldiers install metallic corner reflectors. These caused the enemy who was conducting radar reconnaissance to make errors. Blips on enemy radar screens remained immobile while at the same time the combat vehicles had already completed a swift jump ahead.

Camouflage platoon commander Senior Lieutenant S. Mikhaylov is a graduate of the Senior Military Engineer Commanders Academy imeni Marshal of Engineer Forces A. I. Proshlyakov and he knows his business well. His assistants Sergeant S. Shishkov and Junior Sergeant O Tolmachev are trained to operate one level higher than the positions they hold.

During exercises platoon personnel often have to demonstrate to soldiers of various subunits the sequence for using metallic corner reflectors, standard camouflage sets and various artificial nets and improvised materials. In a modern battle it would be difficult to hide the commander's real concept from the enemy without these things.

There was one case where Senior Lieutenant S. Mikhaylov's subordinates helped personnel from an engineer company camouflage a low-level floating bridge under a destroyed bridge. To do this, camouflage platoon personnel set up a dummy crossing. This guile worked out well.

12511

CSO: 1801/150

ARMED FORCES

PRIVILEGES FOR FAMILIES OF MILITARY PERSONNEL DISCUSSED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 12 Dec 84 p 4

[Article by V. Vandyshev, senior legal council for the USSR Minister of Defense: "For Families of Servicemen"]

[Text] What privileges have been established for families of non-regular servicemen?

A. Kozlova from Dzerzhinsk

Senior USSR Minister of Defense legal council V. Vandyshev responds to this question.

The Soviet State is constantly concerned for the families of non-regular soldiers, sailors, sergeants and sergeants major and a number of important privileges have been established for them. For example, no later than one month after induction, the local soviet ispolkom must set up work for wives whose husbands have been inducted into military service, and in that same period must put their children into nurseries and kindergardens regardless of what department the institutions belong to.

Wives of non-regular soldiers, sailors, sergeants and sergeants major are paid an allowance for children. The allowance is established by the commission of the soviet of peoples deputies rayon (city) ispolkom where the family lives. An allowance is fixed by the trustee and paid to the guardian to educate the children of non-regular servicemen and the claim for this is presented to the rayon (city) military commissar.

In accordance with Article 75 of the USSR Law "On General Military Duty" the living area that families occupy before servicemen are called into the service are retained by the servicemen for the effective length of military service. They (along with the members of their families) cannot be removed from the waiting lists for living space. When a family has no individual drawing a salary, the living space that the family occupies is paid at the existing minimum rate for apartment space as established by the legislation in effect. If as a result of a serviceman's induction into military service his family has surplus living space, they pay at the single rate. Families of

servicemen cannot be evicted from the living quarters they are occupying by court action without another living area being allotted.

Wives of non-regular soldiers, sailors, sergeants and sergeants major are exempt from the tax on bachelors, single women and USSR citizens with small families. This privilege is retained for the entire time the serviceman is in medical institutions, on sick leave and also for a period of up to one year from the date of release in case he is released from military service because of illness.

Families of servicemen in regular military service are exempt from the agricultural tax if there are no other family members able to work on their farm other a wife and mother with children up to eight years old.

Members of families of non-regular soldiers, sailors, sergeants and sergeants major are exempt from the tax levied on owners of structures and land plots.

At the loss or death of non-regular servicemen their families are paid a pension for the loss of the breadwinner. The family also retains for six months all such privileges to which they were entitled.

Families of cadets in military training institutions and military construction workers have a right to the same privileges as those families of non-regular soldiers, sailors, sergeants and sergeants major.

12511

CSO: 1801/114

ARMED FORCES

BRIEFS

IZHEVSK RENAMED 'USTINOV'--By a decree of the USSR Council of Ministers, the city of Izhevsk in Udmurt ASSR will be renamed 'Ustinov' with the goal of preserving the memory of D. F. Ustinov, distinguished Communist Party figure and Soviet statesman, member of the Politburo of the CPSU and Marshal of the Soviet Union. The Ulyanovsk aircraft industrial complex, a military unit, a warship, and the Leningrad mechanical institute where he studied have also been named after Ustinov. Streets in the cities of Moscow, Leningrad, and Kuybyshev will bear the name 'D. F. Ustinov.' Memorial plaques are to be placed on the Ministry of Defense building and on the home in which Ustinov lived. Scholarships in the name of D. F. Ustinov, Marshal of the Soviet Union, have been established for students at a number of institutions of higher learning. [Text] [Moscow KRSNAYA ZVEZDA in Russian 3 Jan 85 p 1] 12701

CSO: 1801/113

AIR/AIR DEFENSE FORCES

IN-FLIGHT BOMBER REFUELING PRIOR TO ANTI-SHIP STRIKE

Moscow KRASNAYA ZVEZDA in Russian 11 Jan 85 p 1

[Article by Lieutenant Colonel V. Gaydashev, two-time Red Banner Baltic Fleet: "Contact"]

[Text] The silence was broken by the powerful boom of jet engines. The bomber, passing the dispatcher control point, took off into the sky after scorching the landing strip with its afterburner. Several hours later, a tanker aircraft took off from another airport that was situated off to the side of the bomber's flight path. At the designated time these aircraft had to meet at an assigned point in space over the stormy winter sea.

Aerial refueling is complicated, but as far back as the 30's an aerial refueling was accomplished in our country as a TB-1 bomber refueled a R-5 reconnaissance aircraft using a system developed under the guidance of A. Zapanovskiy. The aerial refueling system in our country is automated. However, even now it requires a high degree of skill from pilots and crews.

After the flight I asked commanders of the crews who participated in the refueling to share their impressions.

Bomber crew commander Major S. Osokin: "No matter how often we study and train in aerial refueling, the very fact that we are to do this complicated operation is always upsetting.

The entrance hatch slams and from that moment on we are tied to the earth only by radio. I put on my headset and tighten my oxygen mask. Aerial gunner-radio man Warrant Officer M. Puzyrev checks and adjusts our communications. At the very nose of the airplane navigator Captain M. Karuna is "practicing witchcraft" over his maps. The whole flight has been planned on the ground but he rechecks himself and readies the navigational equipment to operate in the air. This is complicated work, for after the refueling and long flight we must find and destroy an 'enemy' ship on the ocean.

After breaking through the clouds the bomber is set on the assigned course. 'Each flight only at the good or excellent level.' This is a line taken from the socialist obligations accepted by our crew and included in competition toward a worthy meeting for the 40th Anniversary of Great Victory and the 27th



CPSU Congress. We are certainly trying to keep our words compatible with our actions, but success today depends not only on us, but also on the personnel in the aerial tanker."

Commander of the tanker aircraft crew, Captain S. Antoshkin: "I look at my watch, as the calculated time must be met exactly.

'We have entered the zone', reports navigator Captain N. Vitsin.

This means that the bomber is somewhere nearby. We detect it several kilometers to the right of the course. We establish communications with it, exchange information and say, 'Make your range to the meeting point and your air speed more exact.'

We begin to close and the distance between the bomber and us slowly lessens. Captain Vitsin corrects the aircraft's course and considers the wind's direction and speed. My assistant Lieutenant A. Kislov maintains engine speed.

We prepare for work in the refueling zone, keep the aircraft at the calculated speed and turn on the hose extension system."

Major S. Osokin: "As I look out of the bomber cockpit I clearly see the tanker aircraft extend its hose. Bending like a snake, it creeps from under the wing and extends to the required length. Now the most critical moment, the coupling maneuver, is at hand.

'Commander, a little to the right', I hear the voice of Warrant Officer V. Ruzhitskiy, fire equipment commander.

The speeds of the aircraft are almost identical. Ruzhitskiy gives yet another correction. From the stern cabin he can see things that we, the other members of the crew, cannot. The bomber wing slowly nears the end of the hose. 100 meters, 50, 20, 10. It is now important to 'catch' the moment when the subtle motion of the control "lays" the airplane wing up against the extended claw on the end of the hose.

This is difficult to do. The tanker aircraft is bulky and cumbersome and our bomber has to get under it. We fly closeby at an enormous speed. It seems that you can reach the tanker with your hand. And the extended hose? One careless move and something irreparable could happen.

This is the primary reason why the crew must have mutual understanding, coordinated actions, exact calculations, judgment by eye and filogree piloting equipment.

I hear the long awaited report from the fire equipment commander: 'the wing is on the hose.' Now it is important to maintain the exact distance. I seem to feel small beads of sweat on my forehead, but there is no time to wipe them off.



'The hose is in the claw,' reports Warrant Officer Ruzhitskiy. 'Contact.'

I move the bomber a little to the right and higher and take up the refueling formation. Instruments indicate that fuel is flowing into the tanks of our airplane."

Captain S Antoshkin: "Refueling comes to an end. From the bomber comes the command, 'Turn off the pump. I am unhooking.'

Tanker aircraft fire equipment commander Warrant Officer A. Yashkarov switches on the fueling system drain and after uncoupling removes the hose and reports that this has been done. Using the airplane intercom system I address all members of the crew: 'Thank you for your work. Now -- home!'"

I had to wait a little longer for the bomber crew to return home for they still had many hours of work over the cold ocean waves. But now they had all the fuel they needed. The naval fliers skillfully overcame the "enemy" anti-air defense and after entering the assigned region and detecting the opposing side's ship, they made an accurate tactical bombing run on it. This was established by on-board monitoring equipment. And the successful aerial refueling really assisted the successful completion of this combat training mission.

12511

CSO: 1801/125

## NAVAL FORCES

### VICE ADM RYABOV ON COMMAND, CONTROL IN SSN OPERATIONS

Moscow KRASNAYA ZVEZDA in Russian 1 Feb 85 p 2

[Article by Vice-Admiral V. Ryabov: "The Level of Trust"]

[Text] The atomic submarine was searching for an "enemy" surface action force (OBK). Less and less of the time allowed for completing the assigned mission remained, yet the OBK remained somewhere outside the possible detection limits. Submarine commander Captain 1st Rank S. Basov was distinctly aware of the fact that this "enemy" detection situation required quick, decisive actions from him. He also knew that a lot would depend on accurate, exact work by the shipboard combat crew (KBR) and on the authenticity of its information on the "enemy", as there was hardly any possibility of verifying this information.

And then the report on target detection came in.

"I think that this is the 'enemy' surface action force."

This was the commander of the sonar group, Captain-Lieutenant A. Kamyshev, who had analyzed the information he had received and had made the conclusion that confirmed the further course of events.

The submarine began to maneuver to start the torpedo attack. Accurate reports from leading members of the combat crew followed. Assumptions from specialists were carefully adjusted and followed from the situation that had developed.

Finally a salvo was fired. The primary target was hit. However the commander was not satisfied with this. If this battle had occurred under real conditions, the commander would have certainly been asked the question, "But what if the damage received by the 'enemy' did not put it out of action?" And Captain 1st Rank Basov decided to make yet another attack, all the more that it was easy to fit this situation in to the "ship continues to move after being hit by the torpedo" variation. And actually the targets did continue moving after the training attack.

But since they had been attacked, the "enemy" would hardly await a second attack and remain on the same course.

Captain 1st Rank Basov addressed the navigator.

"In your opinion, how will the 'enemy' maneuver?"

"I think, yes, comrade commander," the captain-lieutenant showed his assumption on the map.

And without vacillating the commander approved the most probable OBK maneuver. The conclusion of the navigator, the most experienced specialist in his field, coincided with the captain's own conclusion.

The submarine increased its speed, as the crew had allowed the "enemy" out of sonar range for some time. When the submariners again had the ability to observe the targets, their calculations were totally confirmed.

Torpedoes again hit the target.

The duel required that Captain 1st Rank Basov and his closest assistants mobilize all their forces and indeed also required minute exactness in their work. The attack reached its logical conclusion to a large degree thanks to the faultlessly adjusted actions of all KBR members. The submarine commander never so much as doubted the accuracy of the information he received. This freed him for creative tactical work which then allowed him to attain success in a very complicated situation.

According to the total conviction of Captain 1st Rank S. Basov, a shipboard combat crew can be considered ready to resolve any missions when the commander can totally trust it in any situation, no matter how complicated. And one sees in this the maturity of the officer leading the crew. There is good reason for the fact that the submarine commanded by officer Basov is the best in the Navy in OBK torpedo attacks.

At this time a high degree of trust in his immediate assistants in battle is not some pleasant wish, but a necessity dictated by the immeasurably complexed character of a modern sea battle and by the collective labor that forms the foundation of a commander's decision.

It is noteworthy that the foremost commanders in the fleet are united in their views and requirements concerning a shipboard combat crew and its command and control.

Captain 2nd Rank M. Motsak feels, "The commander must know the exact training level of every KBR member and must do everything to raise it. Then a commander's trust in his subordinates has a real foundation."

Behind Captain 2nd Rank Motsak's words lies the instructive experience of commanding a shipboard combat crew. From his first steps in commanding a submarine this officer began to pay special attention to training the leading members of his crew and he intently followed the training course for those who lagged behind. The ship immediately became more effective in completing its combat training missions. Confidence in the accuracy of the data developed by

the KBR stood Captain 2nd Rank Motsak in good stead during the most critical test that the captain had to undergo in the competitive military exercises during naval competition.

In the case at hand, in addition to his other qualities, I must note that the quality of Captain 2nd Rank Motsak that most totally answers his present needs as a commander is his ability to use the maximum capabilities of the whole crew. It would seem that this is clear and natural, but unfortunately there are still commanders who rely only on their own knowledge and ability. An example that comes to mind involves a submarine commander who was one of those lagging behind at one stage of socialist competition. His urge to rely only on his own strengths and experience gradually led to the fact that the officer stopped listening to recommendations from his own immediate assistants while completing military training missions. Seeing the commander's attitude, the subordinates relaxed in their work. Finally the ship commander's chief gave him a strict penalty for poor quality completion of one of the assigned missions. This forced the officer to get his bearings. And he then discovered that he could not totally trust the work of his own KBR: his subordinates had become accustomed to the fact that the commander did everything himself.

To this officers credit, he was able to quickly direct himself to eliminating these deficiencies. First and foremost he adjusted the KBR's regular training. He evaluated every member of the crew and he did this primarily on their knowledge of tactical issues and the quality of the information they developed on the "enemy". He had a book in which he marked observations that had to be eliminated.

And the more training the shipboard combat crew underwent, the fewer observations appeared in the book. Subordinates' recommendations to the commander became accurate and clear. And the increased KBR training was reflected in the submarine's operations at sea. One of the attacks conducted by this ship was acknowledged as the best in the group.

It is very clear that a commander's trust in his subordinates' recommendations is most effective when the commander is able to correctly evaluate personal preparations and the training level of his shipboard combat crew members. And certainly a lot depends on the subordinates themselves, their professional qualities, their feeling of responsibility, their ability to work on themselves and their active desires to give valuable help to the commander in battle.

Captain-Lieutenant S. Lavrent'yev was the commander of a submarine navigation department. Possessing a low professional training level, he did not have the necessary level of tactical knowledge. The ship commander did everything possible to help Captain-Lieutenant Lavrent'yev fit himself into his position, but there was no improvement. As before, the navigator was the weakest link in the KBR. Finally the submarine commander was forced to redistribute the duties in the navigational department. During battle training Lavrent'yev began to be only a figurehead and his assistant, commander of the electro-navigation group Lieutenant V. Gerashenko, began to determine the elements of target motion, actually substituting for the navigator. This could not



continue very long. The submarine's BCh-1 [navigational division] commander who was unable to reach the level of the demands made on him had to take the place of the other officer. It is certainly a commander's responsibility to get the necessary work effectiveness from his subordinates, but if all the commander's efforts are in vain, he cannot weaken the KBR with even one poorly qualified specialist. A weak link is not allowable here. And it is especially important that the weak link can under no circumstances be the commander himself. Even when his subordinates are working very accurately, the commander at times may still be in an extraordinarily difficult position, one that demands an instantaneous and correct choice. Most often this happens when data coming in from different KBR members who are equally trusted by the commander varies. This requires that the commander have an especially high skill level, a keen understanding of the specific situation and often presentiment and prevision.

Once the shipboard combat crew headed by Captain 2nd Rank M. Motsak was resolving the mission of detecting the "enemy" formation. The navigator and the BIP [combat information center] chief reported different formations. Quickly analyzing them, the commander gave preference to the variation given by combat information center chief Captain 3rd Rank V. Lemak. The commander's choice turned out to be correct and this allowed him to immediately and successfully carry out the attack. What guided Captain 2nd Rank Motsak? It was the fact that determining the structure of the formation was the primary duty for the BIP chief and a secondary duty for the navigator. But in return, when determining elements of target movement the BCh-1 commander plays first fiddle.

This, as the saying goes, is a classic case. But it often seems that the commander has to act in spite of logic, at first glance rejecting reliable information and relying on data that seems questionable. This is possible only WHEN there is one indispensable condition: subordinates do not allow any distortions in the process of gathering information on the enemy and while working with it.

I recall the attack by one submarine that was carried out in a poor manner because the commander, an experienced officer and a veteran, was not able to determine which of his subordinates was being deceived by the "enemy". There were seconds until the command "Torpedoes away". The characteristics of the "enemy" submarine's maneuver left no doubt that it would turn to the right. And when sonar group commander Lieutenant S. Sadovskiy reported that the bearing was changing to the right the submarine commander immediately approved that turn. The commander paid no attention to the report from navigator Captain-Lieutenant I. Pas'ko that the turn to the right was questionable. It soon became clear that the "enemy" had turned to the left. The navigator was correct and he had seen this from his calculations. But there was no reason to blame the sonar operators. They reported what they had seen on the screen. The commander, considering the specifics of the position that each of his subordinates was in, had to see the situation at the given moment of attack ahead of everyone.

Once in a while one hears from officers who did not see those old attacks. They say that earlier commanders began the attack with only data from their

sonar operators and their own experience at their disposal and they somehow fired errorlessly. This unnatural "nostalgia" stems from a lack of confidence in themselves and from the difficulty of understanding the missions of command and control in modern battle using modern military equipment. It is impossible to say that battle it was easier for a submarine commander before. It is simply that at that level of equipment development he managed many things himself, and it is easier to train yourself than it is to drive a whole KBR to a high skill level. However, this is the primary mission that a ship commander has before himself today. And the excellent successes of even relatively junior commanders such as Captain 2nd Rank M. Motsak, who with his subordinates at one time attained the rank of the Navy's best shipboard combat crew in gunnery training, bear witness to its reality.

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CIVIL DEFENSE

BRIEFS

LITHUANIAN CIVIL DEFENSE MEETING--Vilnius, 12 Dec--A republic civil defense meeting took place here today. First secretaries of city and rayon party committees, heads of ministries and departments, chairmen of city and rayon executive committees, executive party, soviet and economic personnel, and members of civil defense staffs took part. P. P. Grishkyavichus, first secretary of the Lithuanian Communist Party Central Committee, N. K. Dybenko, second secretary of the Lithuanian Communist Party Central Committee, V. K. Mikuchyauskas, first secretary of the Vilnius city party committee, Major General V. F. Zdunov, executive of the USSR civil defense staff and Hero of the Soviet Union, executives of the Baltic Military District and members of the republic civil defense staff came to the meeting. P. I. Songayla, chairman of the Lithuanian SSR Council of Ministers, gave the meeting's opening address. Major General S. S. Nekroshus, chief of the Republic Civil Defense Staff, and S. P. Apanavichyus, head of the Administrative Organs Department of the Lithuanian Communist Party Central Committee, addressed the meeting. [Text] [Vilnius SOVETSKAYA LITVA in Russian 13 Dec 84 p 1] 12701

CSO: 1801/113

DOSA AF

# AVIATION UNIT FINDS DRAFTEE'S AUTO TRAINING WEAK

Moscow KRASNAYA ZVEZDA in Russian 11 Jan 85 p 2

[Article by Lieutenant Colonel I. Sukhovsha, commander of a separate airfield technical service battalion, Group of Soviet Forces in Germany: "With Shortened Stride"]

[Text] Recently colleagues accompanied Junior Sergeant Grigoriy Golanov on a short leave. The soldier was awarded this incentive for outstanding service and for excellent results in military training. He demonstrated his skill more than once during the course of various summer tactical exercises, providing efficient operational aircraft refueling. But there was a time when...

Platoon commander Senior Warrant Officer V. Boytsun at another time had reported to me in a downcast manner, "I don't know what to do with Private Golanov. I'm afraid he will hit an airplane with the fuel truck."

Actually the young driver was so tense and constrained when he was behind the wheel of the multi-ton special vehicle that one involuntarily feared a vehicular accident. It was as if a novice who had just learned to drive an automobile sat in the cabin. But the soldier's documents showed that he had successfully completed training at the Moscow DOSAAF automotive school. This had led us to think that Golanov would very shortly enter the ranks of trained specialists.

However our hopes were not justified. Many months passed before Private Golanov was able to confidently complete all the required operations in refueling aircraft.

Unfortunately people other than just Junior Sergeant Golanov have turned out this same way. And other aviators in our battalion have gone through this stage of intense final training and strenuous exercises, a stage that required time that is very difficult to cut out of the strict routine of planned flights.

I am not going to analyze the total operations of DOSAAF training organizations that are involved in the training of future military drivers. I will only say that many of them do not have enough experience in practical



work. To be fair I will note that as a rule they know theory rather well, they understand automotive equipment and present the principles on the workings of assemblies and mechanisms. But for us here it is more important that the young specialist is primarily confident behind the wheel of the vehicle.

Moreover it seems that the training of many drivers in some DOSAAF automotive schools at times is designed without being linked closely enough with the specific missions they will have to resolve in the army. Many years of practice has shown for example that not all of them have experience in driving in a column, whereas from their very first days in the army they have to deal with this complicated type of driving which requires definite skills, psychological stability and physical endurance. In order to guarantee completion of all flight missions, we have had to organize additional training for drivers and as a result we are wasting time, energy and material resources. And all of this in point of fact is done only to again repeat the course for training a specialist.

How do we avoid this? Obviously by radically improving all training, indoctrinational and organizational work with the future soldiers, making it more realistic and closer to army conditions. Private Aleksey Shuvayev has served in our unit a little more than six months, but in that relatively short time he has presented himself as a skillful fuel truck driver and a skilled specialist who is full of initiative. The fact that while he was training at the Volga DOSAAF automotive school in Volgograd Oblast he studied types of equipment that were analogous to those in our subunit's inventory and he received enough practice in driving and especially in maneuvering played a decisive role in the soldier's quick assimilation. He therefore had no special trouble in quickly mastering the duties in the new location.

I think that this example is convincing: a young soldier whose pre-conscription training is specific, purposeful and practical quickly enters the ranks. And there is another important thing -- knowledge and a practical knack help the novice to more quickly assert himself in the new collective, gain authority among his comrades and acquire confidence.

For example, for Private Sergey Koloskov, conscripted into the Army by the Nizhne-Angarsk payvoenkomat [rayon military registration and enlistment office] in Krasnoyarsk Kray, the path to high military skills was drawn out. Why? Initially the young soldier had only the vaguest understandings of Soviet Army regulations, a soldier's life, his own army duties and his weapon. It turned out that the military instructor in the school where he had studied, reserve Senior Lieutenant V. Kon'kov, conducted exercises with the future soldiers now and then and was not especially concerned that the senior class received the required activities. And in this case we had to expend a lot of effort to fill in the gaps in the soldier's training. Now he is one of the best soldiers in the battalion and has mastered two adjacent specialties.

I want you to understand me correctly. The majority of the soldiers who replenish the ranks of our battalion twice a year are trained to a sufficient degree for army service. But the examples that I have already presented are even more noticeable against this backdrop. And this is what you get at

times. A soldier that has just entered the army seems like a traveler who with a shortened stride has to travel that same road along which he has already traveled. This is why it is necessary to consider the peculiarities of military service more in DOSAAF training organizations and in schools, PTU's [vocational and technical schools] and technical schools and to organize the training of pre-conscription and prescription personnel so that in his first days of army service the young soldier quickly becomes a skillful soldier, able to undergo all ordeals with honor. This is our most important over-all task.

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## MILITARY EDUCATIONAL FACILITIES

### UZBEK SSR ENROLLMENT IN MILITARY SCHOOLS

[Editorial Report] Tashkent KOMMUNIST UZBEKISTANA Number 12 of December 1984 published in Russian on pages 26-33 a 3,700 word article by B. Allamuradov, the first secretary of the Central Committee of the Uzbek Komsomol, entitled "Party and Social Organizations: Communist Upbringing of Youth-A Most Important Affair of the Komsomol." The article notes on page 32 that during 1984 656 young people from the Uzbek SSR entered into various higher military educational institutions.

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## MILITARY HISTORY

### BATOV ON VISTULA-ODER OPERATION

Moscow POLITICHESKOYE SAMOOBRAZOVANIYE in Russian No 12, 1984 pp 53-57 (signed to press 23 Nov 84) pp 53-57

[Interview with P.I. Batov, General of the Army, conducted by V. Petrukhin, Candidate of Military Sciences: "Breakthrough To The Oder"]

[Text] The heroic chronicles of the Great Patriotic War include many clearly unforgettable pages that tell about the exploits of the Soviet people and their Armed Forces. The Vistula-Oder Offensive Operation is one of these. This was one of the largest strategic operations in the Great Patriotic and Second World War. This operation was conducted from 12 January to 3 February 1945 by forces of the First Belorussian and First Ukrainian Fronts with support by units and formations of the Second Belorussian Front left wing and the Fourth Ukrainian Front right wing.

The Second Belorussian Front included the 65th Army commanded by Pavel Ivanovich Batov. On the eve of the 40th anniversary of the operation's beginning, Candidate of Military Sciences V. Petrukhin met with Twice Hero of the Soviet Union P.I. Batov at the request of the POLITICHESKOYE SAMOOBRAZOVANIYE editor and conducted this interview.

[Question] Pavel Ivanovich, what were the goals of the Vistula-Oder Operation and what missions did the High Command assign to the forces taking part in this operation?

[Answer] The goal of this operation was to finish liberating the Polish people from the yoke of fascist oppressors. It was also to draw enemy forces from the Western Front and ease the situation of Anglo-American forces which had been defeated by the German Fascists in the Ardennes.

The operation's strategic goal was to crush German Fascist Army Group A which was defending in Polish territory and screening the vital centers of Germany, to go to the Oder and secure advantageous positions for the attack on Berlin.

Soviet forces were to break open the enemy defense throughout its depth by using two powerful attacks in the direction of Poznan and Breslau, cut enemy units into isolated groups and destroy them.

In accordance with this concept General Headquarters assigned the following missions to the Fronts.

The First Belorussian Front (commanded by Marshal of the Soviet Union G.K. Zhukov) was ordered to crush the Warsaw-Radom enemy group and control the Zhikhlin-Lodz line no later than the 11th-12th day. Subsequently these forces were to develop an attack against Poznan.

In addition, this front was to make a supporting attack from the area north of Warsaw using forces of the right flank 47th Army which was to cooperate with the left wing of the Second Belorussian Front (commanded by Marshal of the Soviet Union K.K. Rokossovskiy) to clean the area between the Vistula and Western Bug Rivers of enemy forces and subsequently to by-pass Warsaw to the north-west. The Polish First Army was to be used to liberate Warsaw. At the same time the Second Belorussian Front, making the main attack on Marienburg and cooperating with the First Belorussian Front in crushing enemy forces, was to by-pass Modlin on the west with part of its left wing and be prepared to force the Vistula and not allow the enemy Warsaw group to pull back.

General Headquarters ordered the First Ukrainian Front (commanded by Marshal of the Soviet Union I.S. Konev) in cooperation with the First Belorussian Front to crush the enemy Kielce-Radom group and then attack in the direction of Breslau.

The Fourth Ukrainian Front (commanded by General of the Army I.Ye. Petrov) was ordered to prepare its right flank 38th Army to attack in the direction of Krakow to cooperate with the First Ukrainian Front in liberating Krakow. Forces in the left and center of the front had the mission of continuing the attack on Czechoslovakian territory.

[Question] How did our forces prepare for the operation?

[Answer] During the preparation for the operation there were massive movements of troops from the General Headquarters reserve and from the fronts operating in the Baltic region. Troops and military equipment were concentrated for the break-through in the areas of all three beachheads that we had seized on the left bank of the Vistula. Enemy groups and the character of the defensive engineer support were carefully studied and the operations of all branches of service were planned in the break-through period. A lot of attention was given to the use of artillery. Artillery had to be used not only to suppress the enemy defense and not allow the enemy reserve to come up, but also to support the infantry and tank attack with barrage fire. It was to provide a fast attack tempo, also using engineer-sapper units and mobile barrier detachments that had been specially created in the rifle corps. Frontal headquarters placed special attention on the need for concealing from the enemy the concept of this operation and the amount of forces and equipment brought in. Forces were strictly camouflaged and an intense effort was directed against Hitlerite reconnaissance agents.



[Question] What features could be noted in party-political work during preparation for the offensive?

[Answer] Party and political work was aimed at completing the orders of the party and the government -- to complete the rout of Fascist German armed forces and raise the Banner of Victory over Berlin. This required that soldiers put forth every effort and carefully prepare for the break-through of the enemy defense.

Accepting thousands of the best soldiers as candidates and members of the party before the attack allowed the creation of full-blooded party organizations in almost all subunits and in many rifle companies the party-Komsomol layer reached 25-30 percent of the personnel. Troop military training issues were thoroughly discussed at party and Komsomol gatherings. Military veterans helped the young soldiers learn their weapons and master methods of offensive battle. Booklets and leaflets from frontal political directorates and military formation political sections also helped to increase military skills. This literature clearly outlined the most important principles of combined arms battle, the tactical and technical data on weapons and methods for organizing mutual support. The increased party influence promoted increased military skills among soldiers and officers, strengthened discipline and created a great offensive passion in the soldiers.

The military soviets and political agencies in the fronts and armies felt that now that they had entered Polish territory, our soldiers would collide in earnest with capitalistic reality, bourgeois ideology, with the consequences of an increased influence of fascist propaganda on the local inhabitants. Units had many soldiers that had been called up from the liberated USSR western regions and who had left it on the eve of the war. Young replacements were indoctrinated with the spirit of friendship of the peoples of our country, love for the Motherland and faithfulness to the military oath. The policy of the Communist Party and the Soviet Government, the essence of the Soviet social system and its advantages over capitalism were explained in lectures, speeches and conversations.

The front's ties with the rear area were constantly supported. The life of the Soviet people was thoroughly depicted in centralized, frontal, army and divisional newspapers. There is systematic correspondence between units, formations and individual soldiers on the one hand and enterprises, kolkhozes and rear area workers on the other. Many units had evenings where they remembered their native kray and these evenings included films and meetings with worker delegations. Workers and kolkhoz members told about the persistent labor of Soviet people in the rear area and soldiers found out from these simple, sincere conversations how their own and those near them were doing and how the people waited impatiently for their heroes to return home with victory. After such talks a soldier clasped his weapon even firmer so as to hit the hated enemy more accurately.

A lot of work was also done among the local population. Its goal was to strengthen the friendship between Soviet and Polish people.

Military cooperation between Soviet and Polish soldiers was also strengthened. There were joint meetings devoted to preparing for the offensive and monuments were erected to Soviet and Polish soldiers who had fallen in battle.

The soldiers' thorough understanding of the historical significance of the upcoming battle to free Poland from the fascist invaders became a guarantee for a successful attack by Soviet forces.

[Question] Pavel Ivanovich, what do you especially recall from the events of those days?

[Answer] K.K. Rokossovskiy, commander of the Second Belorussian Front came to our army headquarters one cloudy January day in 1945. I had had the good fortune of fighting under his command and had been closely associated with him. Konstantin Konstantinovich had that special gift that allows a military commander to sense the pulse of a fleeting battle and, guessing its course, to make bold, but at the same time well-founded decisions.

After hearing a report on the course of the preparations for the upcoming offensive the commander reminded us about the change in its schedule.

"We will start at 1200 hours on the 14th."

When I asked him why there was such an unexpected change he answered, "Churchill asked for help".

He was referring to the famous telegram from the English Prime Minister in which, because of the German Ardennes offensive which had placed the English and American forces in dire straits, he had asked I.V. Stalin, "I would be thankful if you could report to me that we could count on a major Russian offensive on the Vistula Front or in some other area in January. I consider this urgent." I.V. Stalin answered that although the weather didn't favor an offensive, because of its allies' situation the High Command had decided to open a wide offensive along the whole central front no later than the second half of January. Soviet forces moved west five days later.

[Question] What was the correlation of forces in this area of the Soviet-German Front and what enemy forces opposed ours?

One can judge the size of the operation by the following numbers. The First Belorussian and First Ukrainian Fronts numbered more than 2,200,000 men, 335,000 guns and mortars, more than 7000 tanks and SAU [self-propelled artillery pieces] and 5000 combat airplanes.

The enemy group numbered up to 560,000 soldiers and officers, nearly 5000 guns and mortars and more than 1200 tanks and assault guns. The 6th Air Force's 630 airplanes were supporting their operations. No matter what happened, the Hitlerite command wanted to keep Poland in its grasp and not allow our forces into German territory. They had created seven powerful defensive lines with numerous permanent fortifications which were arranged to a depth of 500 kilometers. This was so that if one were bypassed, forces could occupy the next defensive position. According to the Hitlerite concept, this method of

conducting a defense would drain the blood and tire Soviet units and keep them from breaking through to the Oder. It would also prolong the war a great deal. We should note that enemy formations and units were fully manned, armed and supplied. Because of Goebbel's propaganda soldiers and officers were ready to put up fierce resistance to Soviet forces, but Hitlerite calculations were not destined to be realized.

[Question] Pavel Ivanovich, tell us about the battle. What did you think about before the attack?

[Answer] No one in the headquarters slept on 14 January. The last hours before the attack were running out. Everything was ready and had been checked, but the spirit still seemed uneasy. People involuntarily glanced at the map, drawn by the dark-blue enemy defensive position. What generals and officers were not excited those last minutes before the offensive. But this was the excitement that people have before a major important event that has taken the military labor of thousands and thousands of people.

The thunder of cannonade announced the start of the offensive. Two days earlier, on the 12th, the shock groups of the First Ukrainian Front had moved forward and on the 14th shock groups of the First Belorussian Front moved. That same day our Second Belorussian Front also went on the offensive. Thousands of rounds and shells rained on enemy positions and a fiery storm literally swept enemy fortifications away. Right behind the shells rushed an avalanche of tanks and a threatening "horrah" thundered as the infantry went into the attack. The offensive passion of Soviet soldiers was high.

The battering-ram attack by Soviet soldiers broke a wide breach in the enemy defense and tank formations rushed westward, developing the success. Individual hotbeds of resistance were quickly overcome or bypassed and mobile units seized positions in the enemy's rear area, not giving him a chance to be reinforced.

Soldiers and officers of the First Polish Army fought shoulder to shoulder with Soviet soldiers. The Polish Army was commanded by General S.G. Poplavskiy and he had been given the honor of being the first to enter the capital of his state. That same morning, on 17 January 1945, Soviet units entered Warsaw. The city, considered one of the most beautiful in Europe, lay in ruins. Streets and squares scorched by fascist vandals were deathly silent. The enemy had plundered beautiful Warsaw and had almost destroyed its population. Polish people met their liberators with rejoicing and Poles in spontaneous meetings thanked Soviet and Polish soldiers for liberating them from fascist tyranny.

By this time Hitlerite defenses on the Vistula had been broken. The irrepressible pursuit of the enemy had begun and it did not stop day or night. And the transfer of several dozens of divisions into Poland didn't help the invader. Our armies burst into Germany on the backs of retreating fascists.

In late January and early February advanced detachments of our attacking forces reached the Oder on a wide front. Front-line soldiers had humorously



defined this serious barrier as "two Dneprs with the Pirpyat in the center". Yes, this was an obstacle, if you consider that the river didn't freeze in winter and is very complicated and difficult to cross. Nonetheless our units forced the Oder from the march, seizing numerous beachheads on the opposite bank. And there were only 60 kilometers remaining from one of these beachheads near Kustrin.

The last kilometers of the war. They were still in the hands of an enemy who was armed to the teeth, an enemy full of fury and cruel hatred for us. We had to pay dearly for every step, but without exaggeration, in general there was still a warmer, deeply patriotic desire to cross these last kilometers a little faster.

[Question] In your opinion, what gave our forces their high offensive passion?

[Answer] I must say that it was primarily the examples of courage and fearlessness that, as always, communists and Komsomol members showed in battle.

One noteworthy example comes to mind. During the attack toward the Oder I ran into a self-propelled artillery piece on one of the roads. 12 stars flashed red along its barrel and it was apparent that this weapon deserved respect.

"Who is the crew, comrades," I asked, interested.

"The 999th Self-propelled Artillery Regiment, Lieutenant Rybkin's crew," gallantly answered a sergeant major with the Order of Glory and an entire ladder of strips, testimonial of his being wounded, on his chest.

"You have a good passport on the barrel. All the glory in sight. And the address is correct."

In oily paint on the SAU armor was written "To Berlin!"

The sergeant major explained, "The boys at the factory had written that when we were receiving the new equipment in the Urals".

In smashing the invaders, front line soldiers were piously fulfilling the order of their people and the order of the Communist Party. It was primarily this that lent wings to the soldiers, sergeants and officers, that inspired them to exploits and begat massive heroism.

[Question] What was the significance of the Vistula-Oder operation and how do you evaluate the attempts in the West to belittle the USSR's role in crushing Hitlerite Germany?

[Answer] The Vistula-Oder operation lasted 23 days and during that time Soviet forces advanced up to 500 kilometers and entered German territory. A significant part of Poland was liberated with the help of the First Army of Polish Forces and partisans. The Hitlerites suffered an enormous and irreplaceable losses as 25 enemy divisions were routed and 35 were destroyed. More that 147,000 men were taken prisoners and more that 1300 tanks and

assault guns, nearly 14,000 guns and mortars and more than 1300 airplanes were captured.

The grandiose operation by Soviet forces was highly rated by both our allies and the enemy and this is worth reminding several Western military historians who are now trying to belittle the Soviet Union's decisive role in gaining victory over the fascist-militaristic bloc. Despite irrefutable historical facts, bourgeois historians and publicists are putting a lot of effort into distorting the great liberating mission of the Soviet Army, defaming the name of the Soviet people and their soldiers. Reactionary historiography is proposing the false thesis that USSR Armed Forces entered the territory of European countries not as a liberator, but as an occupier. You can see these assertions in the books "Battle For Berlin" by E. Zimke, "The Last Hundred Days" by J. Tolend and others. But this is gross slander against the foreign policy of the Soviet Union and the activities of its Armed Forces.

Liberating peoples of foreign countries from the fascist yoke was an international duty for Soviet soldiers, a duty they were trained for by the total order of our life and the indoctrination which they received.

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## MILITARY HISTORY

### SOVETSKAYA ROSSIYA EXAMINES CAREER OF ROKOSSOVSKIY

Moscow SOVETSKAYA ROSSIYA in Russian 23 Jan 85 p 4

[[Article by P. Troyanovskiy, former KRASNAYA ZVEZDA front correspondent:  
"Marshal Rokossovskiy"]

[Text] Our Motherland has endured some dire times. Her fate and the life of every one of us were decided in that war. The Soviet peoples knew that and rose up as one at the party's call. And victory over the enemy was also a national victory. The Army and the people celebrated it as one happy family and because of this, our soldier's happiness was greater and more complete.

K. Rokossovskiy

#### The Fourth Order

Events were developing quickly. On the evening of 21 June 1941, information from border guards came in to the headquarters of the 9th Mechanized Corps. This information was that according to a statement from a deserter from Poland, a German Army private, Fascist Germany would attack the Soviet Union on 22 June. At about 0400 on the 22nd, a telegram arrived from the 5th Army. It said to quickly unseal a secret operations packet, a packet that contained a directive which ordered the corps to be quickly brought to combat readiness and moved in the direction of Rovno, Lutsk and Kovel.

Corps Commander K.K. Rokossovskiy showed great self-control and composure. The fact that his headquarters was unable to communicate with Lutsk, Kiev or Moscow to find out what the situation was did not trouble him or disturb his equilibrium. It was clear that war had begun.

A number of things had to be taken care of in the time available, including fuel, ammunition, checking unit readiness, guaranteeing order in the town of Novgorod-Volynsk, protecting military property that would remain after the troops moved out, and the fate of the officers themselves. And everything was done.

This detail is interesting and also characteristic of Rokossovskiy. When setting out on the march at the alert, he refused to issue camouflaged tabs and different ranks to the officers and sergeants. He felt that a commander must stand out in the battle formation as the soldiers must see him. The commander himself must also feel that they see him and follow his lead.

The units rather quickly moved out to meet the enemy in an organized manner. Rokossovskiy and his staff were only worried about one thing. The corps had not been able to be totally outfitted and did not have enough tanks. Those tanks that the corps did have were clearly too old and not able to fight on a par with the newest enemy armaments.

The 9th Mechanized Corps went into battle on the 24th. With a powerful attack the 131st Motorized Division repulsed forward enemy units across the Styr River. The 35th Tank Division began to skirmish with the 13th German Tank Division and the 20th Division attacked motorized enemy subunits from the march and took prisoners.

And so it went. At the beginning of the war the enemy had the advantage in equipment and also ruled the sky, but desperate resistance by Soviet troops disrupted his plans for a lightning-fast war.

Right after the war, Hitlerite General Herman Gott wrote about these battles in his book "Tank Operations".

"Army Group South had it worst of all. The enemy forces defending in front of northern flank formations were thrown out of their perimeters but they quickly recovered from the unexpected attack and counterattacks by their reserves and the tank units that they had available in their rear area stopped the advance of the German forces"

Neither the huge advantage in tanks nor the wide use of aviation broke the persistence of the 9th Mechanized Corps. The Hitlerites were unable to route a single unit of the formation, regardless of how hard they tried. The enemy was only able to push and move soldiers back, suffering heavy losses themselves while doing this.

Combining the efforts of infantry, artillery and tanks and combining their operations, K.K. Rokossovskiy tried to inflict as heavy losses as possible on the enemy and he was able to keep doing this for the duration of all the battles at Lutsk and Novgorod-Volynsk. All of the corps division commanders and many of the regimental commanders, officers and political workers were given governmental awards for distinguished service.

#### A Triumphal Perspective

In October 1941 the enemy approached Moscow. Shortly thereafter the Soviet people began to read notices and correspondence in the newspaper that often referred to "Commander R".

"14 October. Soldiers of Commander R met enemy tanks and automatic riflemen. This battle is still continuing as fiercely now."

"18 October. In Commander R's units every soldier is filled with calm resolve to die before allowing the enemy into Moscow. Commander R's units are striking in their organization and staunchness."

And who is it behind the mysterious letter "R"?

One 20 October PRAVDA answered this question.

"Soldiers of Commander Rokossovskiy set fire to 60 tanks while repulsing a fierce German attack."

"Units of Commander Rokossovskiy are continuing to stubbornly hold off the enemy onslaught."

Yes, K.K. Rokossovskiy was one of those who commanded an army in the battles for Moscow.

On 29 October I received the order to go out to the already famous 16th Army. The KRASNAYA ZVEZDA editorial staff had entrusted me to write a sketch about Lieutenant General Konstantin Konstantinovich Rokossovskiy for the foreign press and at the same time to gather material for a progressive article which they wanted to call "Not A Single Step Back".

The editor said, "It would be good if Rokossovskiy would put his name to the leading article".

And we were on our way. We rode on the "Sokol" metro and swung down Volokolamsk Highway. The vehicle driver alertly watched the road and I watched the skies. Despite the cloudy weather, fascist Messerschmitts and Junkers were in fact showing up in the skies and we had to jump off the vehicle two or three times as enemy airplanes attacked the street.

In about an hour we swung off the highway and found the 16th Army Headquarters in a small village amid a forest. The commander was not there. He was up with the troops and returned to headquarters rather late. For a long time he refused to talk to me, pleading that he was busy and saying that we didn't have to write sketches about generals, but about soldiers. But divisional commissar Lobachev all the same convinced him to fulfill the KRASNAYA ZVEZDA request.

Finally Rokossovskiy said, "Okay, let's talk since it seems necessary. But I will not write or sign my name to any progressive articles. I order soldiers 'Not a step back!' and this is the commander's order. You will have to get other authors, private soldiers and officers who have distinguished themselves in battle, to the newspaper for that."

And his mind was made up on that point.

Rokossovskiy's words come back to me:



"These are dire times for the Fatherland, but, I think, they are not hopeless. The enemy is still strong, but this is not the same enemy that began the war on 22 June and whom I met at Lutsik. The light of the German army has dimmed to a significant degree and the enemy is suffering very heavy losses. I think that the Fascists will still gain some individual successes, but these will not be decisive."

Rokossovskiy paused and suddenly asked, "Do you have a map?"

I handed him my Moscow-and-vicinity map. The general glanced at it, returned it to me and called in his adjutant.

"Go to the operations section and have them put together two maps of Europe. One for me and one for the correspondent."

To me he said, "It is impossible to fight without a future. You must see all the possible theaters of the war. Do you not think that we, the Red Army, will be in Berlin?"

A.A. Lobachev brought lists of facts for the editorial's leading article. Rokossovskiy read through them and asked that I also put in the name of one artillery man from the Dovator cavalry corps. He said, "This is who must write the leading articles. His words will raise the alarm and reach right into the hearts of millions of soldiers."

#### Capturing A Field Marshal

On 1 October 1942 General K.K. Rokossovskiy took command of the Don Front at Stalingrad.

Soon after he wrote a letter home to his wife Yuliya Petrovna and his daughter Ada.

"My dears. The flight to the new location went well. I made like a migrating bird and hurried south. I set out to work the first day and directed my efforts to destroy Fritzes, this leprosy, with a total frenzy and accumulated spite. My former faith in the fact that there will be a time in the near future when this leprosy will be destroyed has not left me, but grows stronger every day. The time will come and the Fritzes will be beaten as they were under Aleksandr Nevskiy, under Grundwald and many others. Now a little about myself. I am healthy and cheerful. I lived in a ravine for a few days and also in a dug-out, but most of the time I am at a siding."

After fierce battles the enemy at Stalingrad was surrounded and on 31 January 1943 the German Army commander was taken prisoner.

Chief Marshal of Artillery N.N. Voronov recalls:

"In the evening prisoner Field Marshal Paulaus was taken out for questioning. We heard the creak of the opening door and Paulaus, right on the threshold,



asked, 'How will I know who is Marshal Voronov and who is General Rokossovskiy?' The interpreter gave him an exhausting answer.

The door to the large room where Rokossovskiy and I were standing was opened and Paulaus stepped in. He stopped and silently greeted us.

I said, 'Come to the table and take a seat'. The interpreter translated and Paulaus entered and took a chair.

Before us stood a tall, elderly man with a pale, thin face and tired eyes. He seemed a little confused and embarrassed. The left side of his face twitched rather often, his hands shook and he couldn't find a place for them. We offered him a smoke and he nodded his head in gratitude, but didn't take a cigarette.

I then said, 'We recommend that you immediately give the order to those German forces still fighting to cease military operations in order to avoid useless bloodshed and unnecessary sacrifice...'

Paulaus carefully listened to the interpreter, signed heavily and then began to answer without haste. He said that unfortunately he could not take my recommendation as he was a military prisoner and as a consequence his orders were invalid.

On 2 February the battles at Stalingrad ended victoriously.

#### The Opinions of Subordinates

In the summer of 1943 after the successful completion of the Battle of Kursk the Central Front which General K.K. Rokossovskiy commanded reached the Dnepr in a quick dash and forced the river at several locations.

At this time there was a press conference at front headquarters and the front chief of staff, Lieutenant General M.S. Malinin, spoke. After recounting the successful combat operations by Central Front units in the direction of Kiev, Malinin continued.

"And now, in this difficult situation Front Commander General of the Army Konstantin Konstantinovich Rokossovskiy showed mature military leadership talent"

He was unable to complete these words as we heard, "General, there is no reason for extolling Rokossovskiy like that."

The front commander stood in Malinin's office doors. He greeted the correspondents, excused himself for interrupting the conversation and, turning to Malinin, said, "I will come by a little later, but seriously, don't shower so much praise on Rokossovskiy."

And to us he said, "The main thing in battle is ideal synchronism. Sometimes the front commander and a private soldier have the same influence on success. Often it is our outstanding private soldiers and our excellent commanders of

platoons, companies, battalions and batteries that make the decisive contribution to the course of battle. And what about the weapons that the Motherland has so well supplied? I advise against belittling the significance of decisions by the Supreme High Command. If General Headquarters doesn't provide the men and materials, no frontal or army commander, be he one hundred times as talented and able, would attain the necessary success."

When the front commander had left, General Malinin noted with a smile, "He really dislikes it when military successes are linked with his name either in conversation or in print. He feels that every decision comes not from him, but from the Military Council, the collective organ for managing military operations on the front. And this is certainly so, but Konstantin Konstantinovich can understand, develop and enrich a thought or concept of another comrade like none other. He can evaluate an initial success of an army or corps and see the further perspectives beyond it. And he can also put off his own idea if he sees that the recommendation of another military leader is more responsible, bolder or has more future."

Lieutenant General of Tank Forces and Hero of the Soviet Union M.F. Panov, former commander of the 1st Separate Guards Don Tank Corps, recalls:

"I first came under General K.K. Rokossovskiy's command at the battles of Stalingrad. The killful and successful use of tank formations in war is a delicate and difficult task and only a military leader who knows the strength and capabilities of this threatening equipment and who thinks in modern terms can master it. I certainly put Konstantin Konstantinovich Rokossovskiy in that category of military leaders, a bold innovator in military affairs and a man who doesn't think by rote.

I will give only one operation, the Belorussian operation as an example.

The Don Guards Tank Corps was operationally subordinated to the 65th Army.

After losses during previous military operations I along with other formation commanders was with the army commander and I received clear directions from a representative of General Headquarters Marshal G.K. Zhukov and our commander K.K. Rokossovskiy.

G.K. Zhukov added, 'You have an open field before you to show initiative.'

With this parting the corps went into battle.

On 26 June the corps received a radiogram from Rokossovskiy: 'Fight well, only completing the primary mission remains. I wish you success. The primary mission is to surround the enemy in the area of Bobruisk.' Rokossovskiy was literally reading our minds. On 28 June the corps broke in to Bobruisk."

#### The Final Strike

General of the Army and Twice Hero of the Soviet Union P.I. Batov, former commander of the 65th Army remembers:

"Pictures of battles in the lower reaches of the Oder River in spring of 1945 pass anew before my eyes.

The first glance at the unfamiliar river was perplexing. It was wide, swift and insidious with widely marsh-ridden floodlands. 65th Army soldiers gave it an accurate name -- 'Two Dneprs with the Pripyat in the center'.

We began to study the terrain. Shortly thereafter the commander of the 2nd Belorussian Front, Marshal K.K. Rokossovskiy joined us. I never tire of admiring his well-knit physique, tall, strong and handsome.

The front commander had begun a personal reconnaissance. Everyone was in an elevated mood. The great battle for Berlin had unfolded on this large territory and at that time, as our front was preparing for an offensive in the direction of Stettin-Rostok, the 1st Belorussian and the 1st Ukrainian were carrying out comprehensive measures in preparation for operations directly against Berlin. A little more effort and the Hitlerite Reich would be destroyed.

Rokossovskiy said, 'First of all comrades, I will acquaint you with the demands of General Headquarters. The offensive by our troops must be conducted with undampening effort around the clock. The days of Hitlerite German are coming to an end. But now speed is not only a military problem. It is also a major political problem.

The commander explained his concept further. 'We must not allow the enemy 3rd German Tank Army to approach Berlin. Troops of the 2nd Belorussian Front will attack with their left flank and cut the forces of this army off from the direction of Berlin, squeeze it against the sea and destroy it. The 70th and 49th Armies must play a decisive role in this offensive.'

Then Rokossovskiy turned to me.

'The 65th has the mission of providing the front's attack group from the north. Pavel Ivanovich, you have fewer forces and a larger attack front, but I think that the 65th will not lag behind the army's left flank and will be able to maintain the necessary offensive tempo.'

I answered, 'We will make our way in that direction, comrade commander.'

Reports were heard by each army and this included demonstrations on location. People went up into the garrets of buildings. Observation conditions were satisfactory and both channels of the Oder and the floodlands in the 70th Army's offensive sector were looked over very well. The eastern and south-eastern outskirts of Stettin were clearly visible through binoculars and battery commander scopes. The town hung over the river like a huge stone block.

'An ancient Slavic, Polish city," noted Rokossovskiy.

And right there on location the marshall carefully and specifically assigned missions. I remember before an attack in Belorussia he crawled along the

whole defensive line of the army. His eyes were like diamonds.``Preparations for the final attack on the enemy had begun.

After analyzing the situation as it was on 18 April I decided to move the start of the artillery preparation from 0900 to 0630. It will last 45 minutes instead of 90 and the first salvo will be the start of the assault.

I called the front commander but K.K. Rokossovskiy could not be found and people in the headquarters decided not to change the original data so I had to take responsibility on myself. I was convinced that Rokossovskiy would support me. Then the front commander called.

'Pavel Ivanovich, my people tell me that you changed the time for the start of the operation. Is that true?'

I could tell by his voice that the commander was worried.

'Yes,' I said. 'Forgive me for delaying my report.'

'That isn't the problem. Why did you make the decision to change the times?'

I briefly stated my reasons and Rokossovskiy said, 'There isn't some resentment that is instigating such a change in the operations plan is there? Tell me honestly.'

'I feel that resentment must have no place in such a matter.'

Rokossovskiy decided to discuss the change with other commanders.

I looked at my watch -- 2300 hours. Will the commander approve the decision? If he approves, will it be successful?

A ring.

'Well, Pavel Ivanovich, have you reconsidered?'

'No, comrade commander, I have not. I again weighed the pros and cons and I am sure of success.'

After a short meditation Rokossovskiy said, 'Okay, go ahead. I will give you an additional brigade of multiple rocket launchers. We will answer for this together. Good luck!'

And -- victory. I had another meeting with the front commander and he beamed.

'Pavel Ivanovich, I will not hide the fact that you forced me to worry at the Oder. And now I will tell you a pleasant secret. The military council has recommended you for the second Gold Star of a Hero of the Soviet Union.'

And he shook my hand strongly."

## A Meeting With Partisans

Hero of the Soviet Union G. Pokrovskiy, partisan detachment commander remembers:

"Late in August 1942 I was told that I had to fly to Bol'shaya Zemlya. Partisan commanders were being called in to Moscow. The take-off went well and we set a course for the city of Yelets. The fact was that the Bryansk Front Headquarters was on the outskirts of that old Russian city.

Rokossovskiy greeted us so warmly and sincerely that we were taken aback. We knew that the general had little time and therefore were prepared for a very short, official meeting, but everything was totally different. Rokossovskiy went around to each of us, greeted each with a handshake and invited us to be seated.

'I greet you, dear soldiers of the Bryansk Front,' said Konstantin Konstantinovich. 'Yes, I know that you are partisans, but nonetheless I consider you soldiers of the Bryansk Front. I make no reservations.'

This type of opening made us more animated and many people broke out in smiles. And the commander himself smiled. Somehow this immediately won our favor and Rokossovskiy meanwhile continued.

'You are prepared for reports, but I will simply state that I have full information about many of your most important affairs so let's go ahead without reports. Let us simply talk about what is worrying you, how you are fighting, what your problems are and what requests you have for me. In short, bear your heart to me.'

The conversation came around to an attack on major garrisons.

'I think that you can hardly get involved in extended battles,' said Rokossovskiy. 'No matter how you twist it, all of the preponderance in the end result in such a battle is with the enemy.'

Our group resounded with the objections that there were other examples.

'Don't take offense at me,' softly murmured Rokossovskiy. 'I know that you have conducted a number of successful attacks, but all the same comrades,' the general's voice became firm, 'I am thoroughly convinced that the Red Army handles the enemy better than you do. You can and must do other missions that will directly help the front.'

Rokossovskiy considered reconnaissance as the primary mission among those we had to do.

Each of us was given a chance to speak out. The general listened, making notes on a notepad. And I also asked to say a word. As it turned out, the majority of the personnel in the detachment that I commanded were Red Army personnel that had come out of units which had been surrounded.



'But what is bad,' I grew bold, 'is that they fight well, but all the commanders and political workers have the same military ranks as when they joined the detachment.'

Konstantin Konstantinovich said, 'That shouldn't be. The Motherland must provide incentives for service. You will get directions on how to get these servicemen the next military rank or higher.'

And other issues that we brought up to the commander were just as quickly solved.

We had started this unique conference at 1200 hours. Time flew by unnoticed and at 1600 hours, after looking at his watch, the commander said, 'Well, dear comrades, we know each other better. Let us end our conversation with this. I am inviting you to supper.'

We went out of the office to a spacious enclosure where a table was set.

'I have a small surprise for you,' said the commander. 'We have a brigade of artists from Moscow theaters and I don't think that they will refuse to perform for partisan commanders '

And thus we were at a concert that I will never forget. Besides all the other artists, Klavdiya Ivanovna Shul'zhenko sang 'Siniy Platochok' for us. I heard this song for the first time not on the radio, but in person, as if she were singing it for me personally. Rokossovskiy listened along with us."

#### Letters From Brother Soldiers

K.K. Rokossovskiy's family showed me letters which the marshal had received from front-line soldiers. They most often had been sent to his home on Granovskaya Street.

Hero of the Soviet Union Aleksandr Passer writes from the Nanaian village of Alyaks in Khabarovskiy Kray.

"I received your congratulations on my birthday, comrade marshal. Thank you, thank you, thank you. But allow me to ask how you found out my birth year. In any event, your letter was my best gift. I heard a concertina, comrade marshal and when I play it, I recall the Don Front. Just as I see you now in that frosty day that was so significant for me.

'Thank you very much' you said, thanking me for bringing in that German officer from the enemy rear area. 'I do not know what to give you as a remembrance. A weapon? They say that you are an excellent hunter.'

And I answered that I would really love to have a concertina. Indeed, before the war I not only earned my meat and fish, I had also managed a club.



And I did not part with your concertina for the whole war, comrade marshal. And indeed it is often with me even now."

#### A Letter From Permi

"Dear Comrade Konstantin Konstantinovich. Reserve Sergeant Major O.N. Popov to whom you gave the Order of the Patriotic War at the Kursk Bulge is writing you. You told me then that I should educate my sons just like the heroes that we, the machine gunners of the 13th Army, were. I am reporting comrade marshal, that my oldest son was recently awarded an inscribed watch for detaining an especially dangerous criminal. My youngest son Igor' has become a shock worker of the five-year-plan. They have not had to fight, but they are ready at any minute to come to the defense of the Motherland."

From Alma-Ata, from General Panfilov's birthplace:

"Many thanks, comrade marshal for your best wishes. Thank you for your attention and concern. None of us is in need of anything. Your attention for us is very dear."

An invalid of the second group Yakov Yemel'yanovich Sokolov from Krasnodar thanks you for your help in obtaining an automated 'Zaporozhets'. A former artillery man and Hero of the Soviet Union tells the marshal how brother soldiers of the 16th Army are living in Leningrad. Miners write from the Urals and Ruhr and workers from Berlin and Volgograd, Varshava and Kursk. Scholars, poets and sailors write. Some ask for advice, others share their happiness and yet others thank him for help.

These are letters from brother soldiers, from everywhere, from all corners of the country. They were all his military family and they call themselves "Rokossovskians". And it was to them, as to all his fellow citizens that the marshal turned in his book "A Soldier's Duty".

"Glory to you, wonderful Soviet people! I am lucky that I have been with you all these years. And if I was able to do something, it was thanks to you."

#### Biographical Facts:

Konstantin Konstantinovich Rokossovskiy was born in the city of Velikiye Luki on 21 December 1880 of a Russian-Polish family (his mother was Russian, his father Polish). In 1911 he began work and in August 1914 he was called up into the army.

Service: He took part in the First World War as a private and a non-commissioned officer and was in the ranks of the Soviet Army from 1918. During the Civil War he commanded a squadron and cavalry regiment. He became a party member in 1919. He completed the cavalry course and the senior command course. During the Great Patriotic War he commanded a corps, army and front. He was commander of the Victory Parade in Moscow.

From 1949 to 1953 he was Minister of National Defense for the Polish Peoples Republic. In his last years he was Deputy USSR Minister of Defense, District Commander and Chief Inspector for the USSR Ministry of Defense.

**Battles:**

1929 - battles at KVZhD [Chinese Eastern Railroad]  
1941 - Lutsk, Smolensk and Moscow  
1942 - Stalingrad  
1942 - Kursk Bulge, Dnepr  
1944 - Liberating Belorussian and Poland  
1945 - Eastern Prussia, Eastern Pomerania and the Berlin Operation

**Awards:**

K.K. Rokossovskiy was Twice Hero of the Soviet Union, had seven Orders of Lenin, and Order of the October Revolution, six Orders of the Red Banner, Orders of Suvorov and Kutuzov 1st Class and medals and also foreign orders and medals. He was awarded the highest Soviet military Order of Victory and was also awarded the Honored Weapon.

**Named after him are:**

A boulevard and square in Moscow  
A street in Belikiye Luki  
A military school  
A naval vessel

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## MILITARY HISTORY

### ONE-VOLUME ENCYCLOPEDIA ON GPW PUBLISHED

Moscow MOSKOVSKAYA PRAVDA in Russian 18 Jan 85 p 3

[Article by A. Zhirmunskaya: "Pages From A Fiery Chronicle"]

[Text] This encyclopedia is one volume with 830 pages and 3,300 articles. It was certainly not easy to gather and assemble the enormous amount of facts, events, names and titles. How was this done? I asked the deputy chairman of the publishing house's scientific editorial council, M.I. Kuznetsov.

"There were many problems," he replied. "Our encyclopedia is read by a very wide circle of readers, from school children to marshals. This is primarily a special sort of informational publication which provides a lot of material on a tremendous number of issues relating to the Great Patriotic War."

The encyclopedia provides an extraordinarily wide range of events from those war years. There is information not only about military operations and heroes from both the front and the rear areas, but also information about the continuation of socialist construction in the territory not occupied by the enemy and about party-political work in that very difficult period. The reader will find articles in the encyclopedia about dozens of the largest factories that made a major contribution to victory, about production innovations and about agricultural workers. The partisan movement and work in the underground party and Komsomol organizations are covered in detail.

The encyclopedia has a lot of informational material. Let's assume a war veteran wants to find information about his division, for example the Chernigovskaya Division, one that previously had another name. This book would help for it includes all these type changes. Not all readers know what the various strategic and frontal operations were named, but this book has a special table which makes getting oriented in this area possible.

A major article on war-time literature discusses the enormous indoctrinational and patriotic role played by the works of Sholokhov, Fadeyev, Tvardovskiy, Simonov and other authors and poets.

Special articles about artillery, aviation, mortar and small arms weapons and about transportation's invaluable role in the victory over the enemy will interest many readers. It will be helpful for contemporary young people to

read about the active participation of the Komsomol, Pioneers and members of the Timurov Movement in the Great Patriotic War and about their exploits on the front and in the rear areas.

In short, the book contains rich, factual material. Who are the authors of this colossal work and how many are there? M I. Kuznetsov said that there were 300 hundred authors. They are primarily outstanding Soviet military leaders, leading scholars from the Ministry of Defense's Institute of Military History, the General Staff Academy, the Military Political Academy imeni V.I. Lenin, workers at the USSR AN [Academy of Sciences] USSR Institute of History, IML [Institute of Marxism-Leninism] at the CPSU Central Committee and other institutions. Also authors well acquainted with the partisan movement, with the activities of members of the underground and specialists in various military science and equipment industries and also economics, literature and art were drawn into this work. And memoirs about the war were also used in preparing articles.

The encyclopedia has many illustrations and also many maps. Publishing house workers spent almost six months selecting the most significant illustrated material from the archives. Also the most interesting photographs, posters, cards and drawings were selected their for artistic design.

The paths of the Great Patriotic War led through many European countries and this book has reflected the liberation mission of the Soviet Army and the fraternal aid given to European countries. The interest in this new publication that has been generated in these countries is natural. The articles "The Anti-Fascist Movement In Germany" and "The Resistance Movement In Europe" leave the progressive foreign reader no room for indifference and there is no doubt that this encyclopedia will be translated into other languages.

And we readers will get a book for the 40th Anniversary of Victory.

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FOREIGN MILITARY AFFAIRS

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## FOREIGN MILITARY AFFAIRS

### U.S. AND NATO'S PRECISION WEAPONS DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 7-14

[Article by Col F. Dmitriev: "Precision Weapons of the U.S. and NATO"; passages rendered in all capital letters printed in boldface in source]

[Text] Aggressive circles in the U.S. and NATO have initiated another round in the arms race by striving to achieve military superiority over the Soviet Union in order to dictate their will to it. Their primary goal is the development and large-scale integration of weapon systems and military equipment into their forces which might be able effectively to combat both existing and future enemy armaments. Western specialists believe that one direction in the practical implementation of these designs is the realization of the following requirements put forth in the "shoot-hit" concept: achievement of a combination of a projectile's firepower and accuracy of delivery at the maximum distance to assure destruction of a specifically-defined target on the first salvo with an accuracy of no less than 50 percent. A tactical and operational-tactical non-nuclear guided weapon which meets these requirements is termed a precision weapon by the U.S. and NATO.

By imposing the concept of precision weapons on their alliance partners, the American militarists are attempting to draw them even further into a costly conventional arms race. With that they figure not only on strengthening their leadership in NATO, but also on receiving great profits. It is above all the U.S. who will undertake the development and production of such complex weapons since many of the alliance's countries simply are unable to do so.

In developing nuclear (including strategic) weapons considerable attention has been devoted to questions of the accuracy of a strike on a target. By creating the latter type of weapon, the foreign specialists attempt to assure guaranteed destruction of well-defended targets with a minimum of resources. As noted in the foreign press, the research results on strategic nuclear attack weapons are being utilized to improve conventional precision weapons. Thus, the press notes that the equipping of ICBM's with separating warheads prompted the developers of conventional arms to produce self-guided cluster munitions which in turn, spurred the design of reconnaissance attack units.

Foreign journals report the following BASIC ADVANTAGES OF PRECISION WEAPONS. First, in massed use, their combat effectiveness is equal to that of a low-yield tactical nuclear weapon. Secondly, their selective influence on the chosen target and the absence of radioactive contamination of the ground allow for conducting fire at any distance from the forward edge of the battle area (FEBA) without risk of accidentally injuring one's own troops. Thirdly, the need to adjust fire, characteristic of unguided weapons, is eliminated, which heightens the surprise of a fire strike. In a number of cases, a precision weapon may be fired from areas not subject to enemy fire, due to the distance of its firing position from the front line, as well as to cover provided by the terrain. Fourthly, the use of such a weapon significantly decreases the amount of effort and resources necessary to carry out a military objective which could cut losses in personnel and equipment and simplify logistical troop support.

As an example of the effectiveness of precision weapons, the American press often describes the actions of aircraft in destroying a strategically-important bridge during the U.S. aggression in Indochina. Previous to deploying precision weapons, the American air forces flew nearly 900 combat sorties in which up to 2,000 tons of conventional aerial bombs were dropped on the target. Nonetheless, the combat objective was not achieved and 11 aircraft were lost. On a subsequent raid the bridge was destroyed in an attack by one group of eight F-4 Phantoms which launched a strike with four Walleye aerial glide bombs with television guidance (circular error probable (CEP) for the 1,000-lb. bomb is estimated at 7-10 m at a launch distance of 15-20 km).

A consequence of the successful combat use of such bombs was the Pentagon's decision to further improve guided weapons. The Walleye bombs presently used by US Air Force and Navy aircraft have a glide range of up to 65 km.

In addition, the foreign press notes some DISADVANTAGES OF PRECISION WEAPONS, the chief of which are the high research and development costs of both the weapon itself and the means to assure its use in combat (reconnaissance, target acquisition, guidance, and data processing and communications equipment). Therefore, even before the transition to the development of precision weapon systems, a thorough cost/benefit analysis is conducted. It is also pointed out that the effectiveness of the presently-existing precision weapons in NATO armies declines at night, in poor weather conditions, and during enemy use of electronic warfare (EW). Finally, utilization of all the advantages of precision weapons would require reequipping troops with fundamentally new means of reconnaissance and control and communication which would have high accuracy, resistance to interference, and flexibility. This would create the necessity of changing the armed forces' organizational structure, especially in the lower-level units and developing new tactics for troop actions.

Foreign authors place the first appearance of precision weapons in the World War II period when Facist Germany's specialists created the FX-1400 guided glide bomb. It was radio-guided and intended primarily for shipping targets. They also write about the limited use, at that time, of U.S. and British guided aerial weapons. During the next 15 years, the development of guided

weapons essentially came to a halt, which foreign journalists attribute primarily to the ultimate possibilities of nuclear weapons.

The progress made by the beginning of the 1960s in the theory of automatic guidance, aerodynamics, rocket motors, and especially in radioelectronics was the basis upon which the modern stage of development and modernization of precision weapons began. Such weapons as the American Bullpup air-to-surface guided aerial bomb, the Shrike anti-radar guided missile, the Walleye guided aerial bomb, and the French PTRK [anti-tank] ENTAC were created. In 1972-73, still another guided weapon showed its rather high combat effectiveness in imperialism's aggressive wars in Southeast Asia and the Near East, which led the U.S. and NATO commands to change their views on the role and place of guided missiles in modern armed combat. As a result, in the 1970's, considerable efforts to develop a large number of models of a given weapon for various combat applications by all the armed services were made by the developed capitalist countries.

For the ground forces these weapons specifically include ground and helicopter-mounted ATGMs and laser-guided artillery shells and for the Air Force and Navy, guided aerial bombs, air-to-surface and air-to-air guided missiles, anti-radar guided missiles, for the Navy, anti-ship missiles (see Table). However, as foreign specialists note, they do not completely satisfy the requirements of the U.S. and NATO commands, especially in view of the future developments in the armed forces in the next 15-20 years.

The leading capitalist countries are constantly improving the existing models of precision weapons and developing more modern systems. According the foreign press, in recent years, new tasks have been added to the traditional weapon modernization process, such as improvement of range and accuracy, assuring combat worthiness in any weather, and protection against enemy EW. They specifically refer to implementation of the "fire and forget" concept, as well as to making weapons able to strike multiple targets with one salvo.

Range is increased mainly due to the use of new carriers, including those with more modern motors and the use of advanced rocket fuels, etc. For example, the U.S. has developed the Copperhead shell which is guided by laser beam and is planning to produce remote pilotless vehicles. Foreign specialists believe the main problem in improving the range of precision weapons is assuring coverage over the full extent of the area under an army corp's responsibility, which could stretch for no less than 300 km from the line of troop contact.

Increasing the accuracy of a strike and the effectiveness of a weapon under difficult conditions is viewed by Western specialists as a complex problem involving modernization of not only the components of the weapon itself, but also its support structure: reconnaissance, target location, navigation, and data- transmission equipment. Western press accounts suggest that most attention is focused on utilizing reconnaissance and data- transmission equipment using the millimeter and infrared bands, employing digital processors of signals and data obtained from reconnaissance, and improving the accuracy of navigational equipment.

# CAPITALIST COUNTRIES' ARMED FORCES' PRIMARY MODELS OF PRECISION WEAPONS

DESIGNATION (MODs)	CONTROL SYSTEM		DELIVERY VEHICLE	RANGE KM	TYPE WARHEAD	COMMENTS
COUNTRY OF DEVELOPMENT	LAUNCH AND MIDCOURSE	TERMINAL GUIDANCE		SPEED MACH	WEIGHT KG	
1	2	3	4	5	6	7

## GUIDED AVIATION BOMBS

WALLEYE (Mk1, Mk5, Mk13) USA	--	TV and TV-command	Aircraft: A-4, A-6, A-7, F-4 F-111	25;40; 65 ----- --	HE ----- 385;900	Circular error probable (CEP) 3 -10 m.
GBU-8 (GBU-9) USA	--	TV	Aircraft: A-7, A-10 F-4	7-20 ----- --	HE ----- 430;896	
GBU-10 (GBU-11, GBU-12) USA	--	Laser with Illumina- tor	Aircraft: A-6, A-7 A-10, F-4 F-14, F-105	5-12;65 ----- --	HE ----- 430;87; 896	There is a MOD GBU-16 for US naval aircraft A-6, A-7.
GBU-15 USA	--	TV Command	Aircraft: F-4, F-111 B-52	50;more than 70 ----- --	HE ----- 430	A radio-com- mand guidance block is being developed for use in the PLSS system.
SAMP-400 France	--	TV	Aircraft: Mirage, Jaguar	20 ----- --	HE ----- 165	
Mk13/18 Great Britain	--	Laser with Illumina- tor	Aircraft: Buccaneer Harrier, Jaguar	8 ----- --	HE ----- 186	

## AIR-TO-GROUND- and AIR-TO-SHIP-TYPE MISSILES

HARPOON (AGM-84A) USA	Inertial with radio altimeter	Radar seeker	Aircraft: A-6, A-7, P-3C	120 ----- 0.85	HE ----- 225	Has shipboard variant; Prob- ability of hit with target lock-on 0.99.
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1	2	3	4	5	6	7
MAVERICK (AGM-65A) USA	--	TV, Laser or infra- red seeker	Aircraft: A-7, A-10 Viggen	15; 25 ----- 0.9; 1.3	Shaped charge; frag- menta- tion HE (FragHE) ----- 59; 136	Probability of hit 0.8; 4-6 missiles on a plane.
PENGUIN (Mk3) Norway	Inertial	Infrared seeker	Aircraft: F-16	50 ----- 1.0	Semi- armor- piercing (SAP) ----- 120	In NATO countries arsenals.
GABRIEL (Mk3) Israel	Inertial	Radar seeker	Israeli Air Force aircraft	41 ----- 0.7	-- ----- 150	Has shipboard variant.
ASM-1 Japan	--	Radar seeker	Aircraft: F-1	50 ----- 0.9	SAP ----- 200	
SEA SKOW Great Britain	--	Semi-act- ive radar	Helos	22 ----- 0.95	HE ----- 30	
EXOCET (AM-39) France	Inertial	Active radar	French Air Force aircraft	70 ----- 0.93	SAP ----- 165	

#### SHIP-TO-SHIP- and SHORE-TO-SHIP-TYPE MISSILES

EXOCET (MM-38, SM-39, MM-40) France	Inertial	Radar seeker	ships, cutters, shore batteries	42; 50; 70 ----- 0.93	SAP ----- 165	Probability of hit with target lock-on 0.99.
OTOMAT France, Italy	Inertial	Radar seeker	Ships, cutters, shore batteries	80 ----- 0.9	SAP ----- 165	Has MODs for aircraft.



1	2	3	4	5	6	7
PENGUIN (Mk1,Mk2) Norway	Inertial	Infrared seeker	Ships, cutters	20;30 0.7;0.8	SAP 120	In NATO countries' arsenals.
SEA KILLER (Mk2) Italy	Radio com- mand with optical or radar tracking of target and missile		Ships, cutters	25 0.85	HE 70	Has MODs for helicopters.
GABRIEL (Mk1,Mk2) Israel	Inertial	Semi-act- ive radar seeker	Ships, cutters	18; 36 0.7	100	
Rb08A Sweden	Inertial	Radar seeker	Ships	250 0.85	250	

#### AIR-TO-AIR MISSILES

FALCON (AIM-4A, D,E,F,G)	--	Infrared or semi- active radar seeker	Aircraft of the US NATO, and Japan	10 1.8;2.5	Frag-HE 4;6;18
SPARROW (AIM-7E,F) USA	--	Semi- active radar seeker	Aircraft of the US and NATO	25;40 4.0	Rod 30; 39
SIDEWINDER (AIM-9A,B, C,D,E,G,H, L,M,N,P)	--	Infrared seeker	Aircraft of the US and NATO	11;18 2.0;2.5	Rod and HE-rod 11

#### AIR-TO-GROUND ANTI-RADIATION MISSILES

SHRIKE (AGM-45A) USA	--	Passive radar	Aircraft of the US NATO and Israel	50 3.0	Frag-HE 66	Has more than 10 MODs, span- ning the entire centimeter wave band.
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1	2	3	4	5	6	7
STANDARD- ARM (AGM- 78) USA	--	Passive radar	Aircraft of the US NATO and Israel	80 ----- 3.0	Frag-HE ----- 120	Has a number of MODs; it is able to store the co- ordinates of the captured radar signals.
MARTEL (AS-7) France	--		Aircraft Mirage Jaguar Buccaneer Atlantic Nimrod	60 ----- 3.0	Frag-HE ----- 150	

#### ANTI-TANK MISSILES

HELLFIRE USA	--	Laser with illuminat- or	Helo AH-64	6 ----- 0.7	Shaped charge ----- 9	Helos carry up 16 missiles.
TOW USA	--	Semi- automatic through a wire with optical tracker	Ground transport and helos	3.75 ----- 0.7	Shaped charge ----- 3.5	
HOT France and FRG	--	Semi- automatic through a wire with optical tracker	Ground transport and helos	4 ----- --	Shaped charge ----- 6	

#### ARTILLERY ANTI-TANK GUIDED PROJECTILES

M712 COPPERHEAD USA	--	Laser with illumina- tor	--	16 ----- --	Shaped charge ----- 6	155 mm caliber.
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In this vein, it should be noted that foreign specialists have high hopes for the advanced NAVSTAR satellite guidance system for improving the accuracy of weapons regardless of distance, weather conditions and enemy ECM. It is believed that it will provide round-the-clock worldwide information on the location of U.S. and NATO forces and equipment with an accuracy of 10-16 m. The system is expected to be fully operational by 1988. It will include 18 satellites at various inclinations and equipment for receiving navigational data. At present there are six satellites in orbit with which intensive testing of equipment installed on surface transport vehicles, ships, and aircraft and carried by troops is being conducted. At the same time, a device is being developed for placement on board guided weapons, primarily cruise or ballistic missiles.

The foreign press emphasizes that implementation of the "fire and forget" concept is consistently advancing. In the first stage of guided missile development, an operator had to continuously participate in the guidance process from the moment of launch (firing) until the target was hit. Therefore, it was necessary to align the sight line with a display of both the guided missile and the target. The necessity of simultaneously tracking three basically independent elements completely eliminated the possibility of turning the operator's attention to some other activity and severely lowered the quality of guidance under stressful situations in combat conditions.

In the next stage, successes in microminiaturization of computer equipment provided for the creation of automatic devices to track the target, including those on board the guided missile, which free the operator from the need to monitor the missile during flight. As a result, the effectiveness of precision weapons has increased sharply.

When guiding these systems, the operator must align the line of sight solely with a display of the target. On the whole, the present models of U.S. and NATO precision weapons operate mainly on this principle.

Concurrently, homing (seeker) warheads began to be introduced into precision weapon systems which to a large degree freed the operator from involvement in the process of guiding the missile (shell) during flight to the target. However, the level of technology reached by the 1970s allowed for the establishment and perfecting of mass production of only those seeker warheads which operate on the basis of receiving sufficiently strong signals (anti-radar missiles, air-to-air and surface-to-air homing missiles which lock on to the strong emissions of jet and missile engines) or those which require additional illumination of the target, as, for example, the radar-homing warhead of the Harpoon guided missile, anti-tank weapon systems, which use laser illumination (Hellfire, Copperhead) and GBU-15 guided aerial bombs. The deficiencies of such weapons, Western specialists point out, are obvious: the weak defense against enemy EW, in many cases, requires the involvement of additional operators to illuminate targets.

It must be noted that there were parallel developments in automatic precision weapon systems, particularly cruise missile guidance systems which follow a pre-launch flight program which makes in-flight corrections. Foreign

specialists have put forward the suggestion that with a drop in the cost of such systems, this principle of operation will be used in future precision tactical weapons.

The foreign press articles suggest, however, that the basic direction in implementing the "fire and forget" concept in precision tactical weapons will remain the perfection of seeker warheads for a long time. It should be taken into consideration that at present great success has been achieved in developing precision infrared receivers thanks to which American specialists have created such rather effective air-to-surface guided missiles as the latest version of the Maverick and the improved Hellfire anti-tank guided missile. Guidance to the target is achieved almost fully automatically. The operator need only coordinate the line of sight and the target at the moment the guided missile is launched.

It is entirely natural that success in creating a weapon with such possibilities would allow the developed capitalist countries' military-technical specialists to direct their efforts toward the complete elimination of human (operator) involvement in the guidance process, that is, toward final solution of the "fire and forget" problem. In this there are a number of scientific and technical tasks facing designers, among the most basic of which is the necessity of building precision real-time long-range reconnaissance and target acquisition systems, and developing homing warheads capable of not only automatically guiding the weapon to the target, but of selecting targets against a background of other objects and ground features. Besides that, evaluation of the design of such long-term precision weapon systems abroad has shown that they will satisfy cost-effectiveness criteria only in the event that they are given the capability to combat a large number of similar targets. An analysis of the capabilities of these systems, the foreign press reports, could lead to the conclusion that their combat effectiveness would increase sharply if the reconnaissance and target acquisition components were united in single unit with the weapon itself and its guidance system, based on modern data processing and command-processing methods and communication equipment. A technical plan to develop so-called RECONNAISSANCE ATTACK UNITS has been drawn up as a result.

At present, two types of these units, PLSS and Assault Breaker are being developed by American specialists.

From articles published in the foreign press it is known that the technical problems associated with building PLSS units recently have been worked out to a very great extent. They are intended for reconnaissance and surprise mass destruction of enemy anti-aircraft radar stations (within a zone 500 km. wide and deep) in the interests of protecting aerial attack operations in a TMO [Theater of Military Operations].

Plans for the future improvement of the unit envision the possibility of its use in combatting other radioelectronic means (radio stations, electronic jamming stations, etc.) as well as non-emanating targets, hidden from aerial reconnaissance.

The U.S. Air Force headquarters intends to order 2 PLSS units, which will be transferred to the NATO unified tactical air commands deployed in the Central European TMO. Delivery is scheduled for 1986.

The combat components of the unit will include up to ten TR-1 reconnaissance and data relay aircraft (three shifts of three planes for continuous air patrolling), F-4, F-16 and F-15 attack aircraft armed with guided aerial bombs with special radio command guidance circuits, and a ground control center and a ground radio-navigation network. In the course of further perfecting the unit it has been proposed that air and land-based missiles be built, which would provide a full-range stand-off firing capability. Besides that, there is a study into the possibility of using the airborne component of the unit for navigation in place of the vulnerable ground radio-navigation network of the previously-mentioned NAVSTAR satellite radio-navigation system.

A prototype model of this unit, the first results of which were declared satisfactory is presently being combat tested in the continental U.S. While building it, the American specialists were successful in solving such technical problems as simultaneous electronic surveillance of a large number of targets, determining their location with a CEP of about 20 m, designing computers with the mathematical support for command processing, homing on hidden targets, and using anti-jamming devices and methods of relaying these decisions to the guided missile in real time. Western specialists think that these achievements will affect the rate of development of another unit-- Assault Breaker.

The Assault Breaker reconnaissance and attack unit was built to combat the enemy's second echelon tank groups from a distance of 200 km from the line of troop contact. Its primary use is for maximum weakening of enemy tank groups opposing an army corps even before entering into combat (battle). At the same time, the possibility of using ammunition capable of putting personnel out of action is not excluded.

In 1982, a prototype in the Assault Breaker program was tested. The result was a confirmation of the correctness of the chosen design concept which included an aircraft for radar surveillance of ground targets and weapons guidance, and a land-based mobile control center for guided operational-tactical missiles with cluster bombs armed with a large amount of target-seeking munitions (up to 100 bomblets per cluster). Missiles patterned on the Lance guided missile and the Patriot anti-aircraft guided missile were used as demonstration models.

In creating the Assault Breaker unit, foreign specialists are attempting to solve a number of specific, complex, problems. The chief and most difficult of them, as emphasized in the foreign press, is making cluster bombs for the air-to-air and air-to-surface missiles presently being developed and intended for inclusion in the system. Clusters armed with a large number (50-100) of target-seeking munitions will become a fundamentally new component of the weapon. It is a complicated problem to assure the expulsion of the bomblets from the canister above the target according to a strictly determined law of distribution which assures a sufficiently high probability (10-15 percent) of

hitting a target with a target-seeking warhead or the explosive core's detonating sensor, with which it is planned to equip this ammunition.

Foreign specialists maintain that the full range of the given problems will be solved in the second half of the 1980s with the production of relatively inexpensive, reliable, lightweight, small-sized infrared and radiometric means of detecting ground targets in the millimeter wave band and final assimilation of the technology of mass production of superlarge and superfast integrated circuits. They are used in automatic digital processing of signals radiated by enemy equipment being monitored and in guidance command equipment. It is anticipated that the Assault Breaker units will be received by U.S. Army infantry units in the early 1990s.

A number of foreign authors note that the development of reconnaissance strike units will not be the final stage in the improvement of precision weapons. In particular, they see as long-term areas of work the creation and integration of robotics, the further combining of weapons and reconnaissance systems, including satellites, as well as joint use of groups of weapons, and long-term automated troop control systems.

On the whole, the efforts of the U.S. and the other NATO countries to perfect weapons have a vividly-expressed aggressive character, aimed at achieving military superiority over the socialist states and assuring the armed forces of the North Atlantic bloc a one-sided advantage to launch surprise strikes and conduct extended combat actions on any scale, including the use of weapons of mass destruction.

"Our country," as Comrade K.U. Chernenko has pointed out, "does not seek such superiority and will not allow it over itself." In these party directives, the Soviet warriors see their duty constantly to heighten their vigilance and combat readiness in concert with the warriors of the fraternal armies to protect vigilantly the gains of socialism.

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FOREIGN MILITARY AFFAIRS

FRENCH ARMORED FORCES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 29-34

[Article by Lt Col A. Simakov: "French Armored Forces"; passages rendered in all capital letters printed in boldface in source]

[Text] Having adopted a course toward rapprochement with the military organization of the aggressive NATO bloc, the military-political leadership of France has sharply stepped up the implementation of measures to further build up the combat strength of the armed forces. In particular, it approved a five-year (1984-88) program for force modernization in which an important place was given to a significant increase in the combat resources of the infantry, and primarily of the main attack force --the armored troops.

The French press reports that the armored troops includes tank and armored cavalry (reconnaissance) units and army corps subunits, and armored troop and infantry divisions. General command over them is exercised by an inspector of the armored troops who reports to the ground forces' chief of staff. He is responsible for the condition and combat readiness of the formations and units, development of their T/O and principles of their use in combat, provision of modern weaponry and combat equipment, and logistics. These tasks are handled through the heads of the armored services of the Army Corps, unit commanders and other responsible individuals.

Judging by foreign military press reports, the armored troops presently include six armored cavalry regiments in the I, II, and III army corps (two in each); eight armored divisions (4th, 6th, 7th and 10th in the 1st Army Corps, 1st, 3rd and 5th in the IIInd; 2nd in the IIIrd--in all 16 tank regiments); eight reconnaissance squadrons in the armored divisions (one each); six armored cavalry regiments of 8th, 12th, 14th, 15th, 9th (Amphibious) and 27th (Alpine) infantry divisions; an armored cavalry division in the 11th airborne division; a tank regiment of the French garrison in West Berlin and individual units and subunits. They are equipped with more than 1,000 AMX-30 main battle tanks,; 100 AMX-10RC combat reconnaissance vehicles (BRM); about 350 AMX-10P armored personnel carriers (BMP), including AMX-10PC staff vehicles; more than 350 armored transport vehicles, about 60 AMX-30D armored recovery and repair vehicles (BREM); AMX-13 light tanks,; EBR-90 "Panar", AML-90, AML-60 armored



vehicles; various types of motor vehicles and other equipment. Total manpower exceeds 30,000.

The basic missions of an ARMORED CAVALRY REGIMENT of an army corps are as follows: reconnaissance of enemy troops in the interests of the whole corps, escort and protection of combined arms units in combat and on operations, and also (under certain circumstances) limited offensive or defensive combat actions.

An armored cavalry unit consists of five squadrons: one for command and services (nine platoons--command, staff, communications, anti-aircraft, recovery and repair, medical and sanitation, supply, services, and security); and four armed squadrons (in each is an command and services platoon, four reconnaissance platoons with three AMX-10RC BRMs and a motorized infantry platoon with VAB armored transport vehicles). In all, a regiment has 860 men; 48 AMX-10RC BRMs (fig. 1); 50 VAB BTRs; 32 Milan ATGM units and 180 motor vehicles.

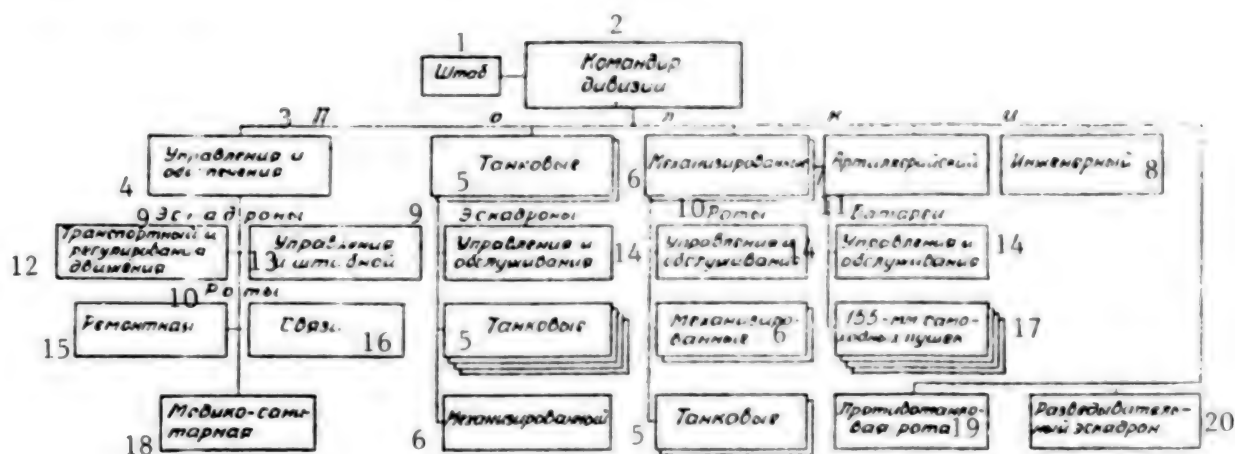


Fig. 1: Organization of a French Armored Division

- |                         |                                   |
|-------------------------|-----------------------------------|
| 1. Staff                | 11. Batteries                     |
| 2. Division Commander   | 12. Transport and traffic control |
| 3. Regiments            | 13. Control and staff             |
| 4. Control and Security | 14. Control and service           |
| 5. Tanks                | 15. Repair                        |
| 6. Mechanized           | 16. Communications                |
| 7. Artillery            | 17. 155-mm self-propelled gun     |
| 8. Engineer             | 18. Medical and sanitation        |
| 9. Squadrons            | 19. Anti-tank company             |
| 10. Companies           | 20. Reconnaissance squadron       |

The ground forces command believes that the organization and armaments of an armored cavalry regiment permit it to conduct combat operations either as part of an army corps or independently. In an attack by the army corps, the regiment, acting separately from the main forces in a 40-60 km zone, could be tasked to locate the enemy, determine his force composition, the nature of his possible actions, etc. To conduct reconnaissance it is recommended that they employ three squadrons, reinforced by army air subunits. The coordination between the units has been worked out in the majority of training exercises.

An armored cavalry division covering one flank of the army corps or a point between units (as in an attack) can engage in combat operations along a front 20-30 km wide. In these situations the order of battle can be arranged in one or two echelons.

The ARMORED DIVISION (around 7,000 personnel) is the basic unit of the ground forces. It consists of a command and services, two tank, two mechanized, one artillery, and one engineer regiments and a reconnaissance squadron and an anti-tank company. Its arsenal includes 148 AMX-30 tanks; 130 AMX-10P BMPs, including AMX-10PC staff vehicles; 115 VAB armored transports, 24 F.1 self-propelled guns, 12 120-mm mortars, 38 Milan and 12 HOT anti-tank guided missiles launchers; 18 20-mm anti-aircraft weapons and more than 1300 transport vehicles.

An armored tank division, in the opinion of the French command, is intended in general for offensive combat operations as part of an army corps. In inflicting deep counterstrikes or strikes at the enemy's flank, the division can complete its mission independently. In this case, it is usually reinforced with artillery, reconnaissance and engineering units and subunits, army air subunits and Roland guided anti-aircraft missiles under corps command. Foreign specialists believe that the armaments of an armored division will permit it to operate under conditions of enemy use of weapons of mass destruction.

On the offense, a division may be in the first or second echelon of the army corps, as well as in the reserve in order to strike at the enemy's flank and successfully penetrate the enemy's rear. The order of battle is based, as a rule, on two echelons: mechanized regiments in the first and tank regiments in the second. The depth of the order of battle is up to 30 km. The width of the attack zone is 10-20 km.

On the defense, the armored division carries out missions to stall an enemy attack in a given direction, to inflict the greatest possible losses in personnel and equipment in order to seize the initiative and go on the counterattack. Combat operations are organized in accordance with the plan of the army corps commander, its place in the order of battle, the mission assigned and other factors. In regard to the above, the foreign press notes that a division may conduct a set or mobile defense and stalling actions or be held in a reserve intended mainly for crushing penetrated groups of enemy troops.

For a set defense, the division delineates a 10-15 km zone along a front and in the rear. For mobile defense and stalling actions it is up to 20 km along the

front. The order of battle usually contains two echelons: in the first are mechanized regiments reinforced by a division anti-tank company and in the second, tank regiments which are up to 15 km from the forward edge of the battle area (FEBA).

French military specialists note that an armored division has sufficient firepower, mobility, and fighting ability to conduct combat operations under conditions in which weapons of mass destruction are used. However, in their opinion, there are serious problems due to the lack of modern anti-aircraft equipment, subunits for deep reconnaissance, and engineering support to overcome various types of barriers and obstacles.

A TANK REGIMENT of an armored division, as a rule, carries out combat missions as part of the armored division. It is the main tactical unit able to carry out various missions on the battlefield and consists of six squadrons: one command and services, four tank and one mechanized. The regiment includes 800 men, about 230 pieces of equipment (including 54 AMX-30 tanks; 19 AMX-10P BMPs; 3 AMX-30D ARRVs; 16 VAB armored transports) and 73 20-mm anti-aircraft weapons on tanks and BMPs.

A tank regiment, in the opinion of French specialists, possesses great firepower and high mobility and is intended for offensive and defensive combat operations. It is emphasized that for effective use of its capabilities, two tactical groups--each with two tank squadrons and two mechanized squadrons under the control of the deputy regimental commander--could be formed. That would allow the commander to react simultaneously to changes in the situation during a battle and focus his attention on the main objectives.

It is recommended that a division's order of battle be organized into two echelons with two or three tank and one mechanized squadron in the first. With two tank squadrons in the first echelon the attack front could be 4-6 km long or, 5-8 km long with three squadrons. The regiment advances to the line of deployment along two routes.

The ground forces command believes that it is not desirable to detail a tank regiment to organize a set defense. However, in an emergency, it could be assigned to defend a sector 4-6 km along a front and 2-3 km deep.

In mobile defense, a tank regiment counterattacks along the enemy flank from the depths along a 3-6 km section.

During containment actions, the order of battle has one echelon. Combat actions are carried out on a front of up to 10 km through surprise raids by the squadrons and counterattacks in combination with quick withdrawals.

A tank regiment can be reinforced with infantry and engineer subunits and it is suggested that tank squadrons be earmarked to reinforce infantry and motorized infantry regiments.

As suggested in foreign press reports, an inadequate amount of troops and equipment in a regiment could seriously complicate combat with enemy tanks and anti-tank means and hinder the organization of combat actions at night, in

populated areas and in natural cover. The transport on hand does not meet subunit POL and ammunition needs. However, French military specialists believe that a tank regiment is capable of carrying out missions in conjunction with mechanized and motorized infantry units.

A RECONNAISSANCE SQUADRON OF AN ARMORED DIVISION is responsible for collecting reconnaissance information about the enemy in a zone 10-25 km wide and 80-100 km deep (measured from the division command post). It consists of five platoons: one command and services; three reconnaissance (in each of which is one command squad; one anti-tank squad which has two Milan ATGM units, and three reconnaissance squads with jeeps) and one radioelectronic platoon (three squads--one command and two radioelectronic). In all, there are 162 men; 6 Milan ATGM units; 9 89-mm RPG ; 9 Rasura radar stations; 3 Elephant radar stations; 40 jeeps and 12 automobiles. It is proposed that 9 reconnaissance patrols and 5 electronic monitoring posts (with 4000 m range) be organized with the troops and equipment on hand.

An ARMORED CAVALRY REGIMENT of an infantry division is intended for reconnaissance in its combat zone or, is used in support of infantry units, as well as for destroying air and sea landings and enemy sabotage units. Armored cavalry regiments of infantry divisions can be one of two types: using AML-90 and AML-60 armored personnel carriers as in the 14th and 15th, 9th (Amphibious) and 27th (Alpine) regiments or AMX-10RC BRMs as in the 8th and 12th regiments. The latter is considered to be close to a tank regiment in its combat capabilities.

An ARMORED CAVALRY DIVISION USING ARMORED PERSONNEL CARRIERS includes four squadrons: command and services (nine platoons: command, staff, communications, anti-aircraft, recovery and repair, medical, supply, services, and security) and three armored cavalry (each with one command and services, and four reconnaissance platoons with three AML-90 and two AML-60 armored cars, two jeeps with Milan ATGM units). The regiment has a staff of 650 in all, 24 Milan ATGM units, 36 AML-90s and 24 AML-60s, 125 motor vehicles and other armaments. The French press blames the limited combat capabilities of armored personnel carriers on outdated armaments and light armor, the lack of night firing devices and the inability of automobiles and other armaments to overcome water obstacles.

An ARMORED CAVALRY REGIMENT USING COMBAT RECONNAISSANCE VEHICLES consists of five squadrons: one command and services (analogous to the command and services squadrons using armored personnel carriers); three armored cavalry (each with one command and services, and four reconnaissance platoons with three AMX-10RCs and two jeeps with Milan ATGM units each) and one anti-tank (one command and services platoon, four anti-tank platoons each with 3 VAB APCs with HOT ATGMs). In all the regiment has 800 men, 24 Milan ATGM units, 12 HOT ATGM units on VABs, 36 AMX-10RC BRMs, 55 VAB BTRs, up to 150 automobiles and other armaments.

The ARMORED CAVALRY DIVISION OF THE 11th PARACHUTE DIVISION is designated for missions similar to other reconnaissance units and to special missions. They include reconnaissance and holding the areas of jumps (landings) of tactical airborne troops, and guidance of aircraft and helicopters to the area, etc.



The division consists of five squadrons: one command and services (nine platoons), one search and guidance (one command and services, and four search and guidance platoons equipped with radar stations), one jeep reconnaissance squadron (one command and services platoon, four reconnaissance and two anti-tank platoons), and two APC reconnaissance squadrons (one command and services, four reconnaissance and one anti-tank platoon). In all, the regiment has 800 men, 36 Milan ATGM units, 24 AML-90s, 16 AML-60s, 160 automobiles and other armaments.

The 11th TANK REGIMENT of the French garrison in West Berlin has the same organization as a tank regiment of a armored division. However, it includes three tank squadrons, two of which are armed with AMX-30 tanks and one AMX-13 light tank (13 tanks in all). The number of regiment personnel exceeds 700.

According to foreign press reports, the French military leadership is devoting unwavering attention to the development of its armored forces. In particular, a plan for building up the armed forces in the coming years envisions a significant increase in combat potential through reorganization, and providing new weapons and combat equipment. Thus, two types of armored divisions are planned. The divisions deployed on FRG territory (1st and 3rd) will consist of two tank regiments (with 70 tanks each); two mechanized (20 tanks each); one infantry; one engineer and two artillery regiments; an anti-tank company and a reconnaissance squadron. Each division is supposed to have 174 tanks, 100 BMPs, 40 155-mm self-propelled guns, 42 Milan ATGM units, 12 HOT ATGM units, 12 120-mm mortars and other armaments. At the same time, the divisions in France and the 5th armored division of the IIInd Army Corps are intended to have three tank regiments each. Each of them will have 53 tanks, giving the division 193 tanks in all.

It has been proposed that the units and subunits be rearmed with new models of combat equipment which would provide an opportunity for combat operations at any time of year and day under various combat conditions. In the process of modernizing present armored equipment and developing new models, primary attention is being paid to increasing the fire power of combat vehicles, improving their maneuverability, defenses, and reliability and lowering the costs of development and procurement of equipment. The military leadership is striving to equip the troops with a family of multipurpose combat vehicles, based on a single basic model. An important place is occupied by questions of standardization of armored equipment and its individual assemblies and components. Thus, after creating the tracked AMX-10P BMP, the AMX-10R wheeled version, and later the AMX-10RC BRM, etc., were developed.

It is believed that the basic types of armored equipment in the 1980s will be AMX-30B2 tanks which are already in service, AMX-10 infantry combat vehicles, AMX-10RC and ERC-90S combat reconnaissance vehicles, VAB BMPs, light armored vehicles to replace jeeps and a series of other models of special equipment developed along the lines of these vehicles. There are plans to significantly increase the capabilities of units and subunits of the armored forces in combat against enemy aircraft and helicopters at low altitudes by introducing new portable anti-aircraft missiles beginning in 1986.

The new AMX-40 is being developed to replace the AMX-30B2. It is intended for regular production in 1990. Plans call for equipping it with a 120-mm smooth bore cannon for subcaliber and rocket shells, installing an electronic fire control system in the turret, and utilizing a 1500 hp V-8 engine with automatic transmission. It is stated that armor made of new materials will be developed to better protect the crews.

Between 1984-1988 the armored troops expect delivery of 511 AMX-30B2 tanks, and by 1991, modernization of 750 tanks presently in use. By the end of 1988, the ground forces will have almost 1440 tanks (there were 1210 at the end of 1983). Besides that, there are plans to deliver 356 AMX-10P BMPs, 1327 VAB BRTs and other armaments.

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FOREIGN MILITARY AFFAIRS

USE OF MORTARS DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 34-35

[Article by Lt Col N. Dymchinskiy: "Combat Use of Mortars."]

[Text] While accelerating the build-up of its ground forces' might, the U.S. Army command is devoting a great amount of attention to not only the creation of new weapon systems, but to improving present ones, including mortars. New methods of using them in combat are being investigated. The foreign military press notes that in a future war, mortars must actively be used in the interests of small subunits along with other means of armed combat in order to destroy enemy personnel and equipment. It is believed that they will be the main means of fire support for tactical company groups on the battlefield.

This is why the practical experience of the use of mortars in recent years' local conflicts has attracted American and Western European military specialists' attention.

According to foreign press reports, at present the mortars used by U.S. ground forces are divided according to their tactical-technical characteristics into light, medium and heavy classes, and according to their use, into company and battalion designations. They can be carried by an individual serviceman (hand-held), transported by pack animals, motor vehicles and combat vehicles, including helicopters (portable) or in a trailer by a tractor (towed) or installed on a tracked or wheeled chassis (self-propelled).

Mortars are used by infantry, motorized infantry, tank, airborne and reconnaissance battalions. For example, a motorized infantry company includes a weapons platoon (with mortar and anti-tank sections), which has three 81-mm M125A1 self-propelled mortars, while a motorized infantry battalion's fire support company contains 4 (the 106.7-mm M106A1). A battalion has 13 mortars in all. Tank and reconnaissance battalions have four and nine M106A1 mortars respectively.

The regular and reserve components of ground forces subunits, including those already mentioned, have the following types of mortars: M224 (60mm); M28A1 and M252 (81mm) and the M30 (106.7mm).<sup>1</sup> According to Western press reports, in the 1990s, the basic type of mortar systems will be a self-propelled model.

Thus, plans call for 66 81-mm self-propelled mortars of high combat effectiveness for future mechanized and armored divisions designated for use in the European theater. They will be part of motorized infantry and tank battalions (six units each).

In noting the merits of mortars, American military specialists specifically single out such qualities as simple construction, rapid deployment and readiness for combat, a rather quick rate of fire, reliability in any weather conditions, the ability to destroy hidden targets, not destroyed by the grazing fire of other types of weapons, and the capability of firing from a hidden position into a circular zone in which the enemy makes use of defensive structures and the terrain.

In the opinion of the U.S. ground forces command, mortar subunits in combat destroy, with great accuracy and efficiency, targets in trenches, on the reverse slope of elevated areas, in narrow ravines, etc. By using different types of shells, they can preserve or destroy personnel, weapons and light armor, as well as enemy mortars and artillery in their firing positions. They can also put up smoke screens or illuminate an area.

Battalion and company commanders direct mortar fire in combat. It is believed that mortars should be used in all types of combat in open mountainous and wooded areas. In particular, it is recommended that commanders of company tactical groups use them in a dispersed manner (in the subunit order of battle) primarily to accomplish missions for direct fire support for the battalion. In such cases, targets before the front or on the subunit's flank are hit by fire teams independently or under the command of the subunit being supported. To hide his maneuvers (regrouping before an attack, replacing reserve fire positions with primary) or the withdrawal of the subunit, the platoon leader can use mortars to put up a smoke screen or illuminate an area at night. Firing under the orders of the company tactical group commander is not excluded. In this case, depending on the conditions, several or all mortar crews could be given assignments to strike detected targets. For this, they may focus their fire consecutively to destroy several targets.

It is recommended that battalion tactical group leaders use mortars in combat operations, as a rule, in concert to accomplish missions for general fire support of the subunit. In this case, the mortars are not put under the command of the company tactical groups. Instead, advance scouts from a mortar platoon of a battalion fire support company are designated. They are equipped with communications and coordinate the fire of the company tactical group commander with that of the fire support coordination group, which is usually deployed near the battalion commander's command post. In the opinion of American military specialists, this organization of fire coordination assures a fire strike on targets of the group itself, as well as on those requested by platoon and squad leaders. In the course of combat, the commanders are directed to shift the mortar subunit fire positions.

The foreign military press notes that in recent years, the U.S. has been working on perfecting mortar armaments; the weight of the weapon and

ammunition has decreased; the tactical and technical characteristics have improved, shells are being designed to guide themselves to armored targets at the end of their flights; general-purpose fuses are being developed for use in different systems; and fire control systems and operational tactics are being perfected.

<sup>1</sup> For more on tactical-technical characteristics of mortars, see Foreign Military Review, 1981, No. 4, pp. 39-41.Ed.

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FOREIGN MILITARY AFFAIRS

BRITISH TROPOSPHERIC COMMUNICATIONS STATION DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 35-37

[Article by Capt. 1st Rank (reserves) L. Yakovlev: "A New British Tropospheric Communications Station"]

[Text] As one of the more active members of the aggressive NATO bloc, Great Britain continues to step up its military preparations. For this purpose, an extensive series of steps is being taken in the ground forces aimed at further improving their offensive capabilities. Emphasis is being given to matters of troop and weapon control, in general aided by various means of communications.

The military leadership of the country places great importance, along with the use of other means of communication, on the further development of tropospheric radio communication at all command levels and, especially, by the ground forces. British industry began to produce tropospheric equipment in the early 1960s.

Fixed and mobile tropospheric stations were intended for use by the armed forces for situations in which large contingents of British troops were stationed in other countries, mainly the FRG, the site of one of the main groups of ground forces, the British Army of the Rhine. A sector (900 km) of the NATO allied high command's "Ace High" tropospheric communications system runs through British territory. A 7000 km route connects London and Washington. Another route (2000 km) passes through France and Spain into Morocco. Two 350 km lines were built in the early 1970's for communication with the British Army of the Rhine. Their use has shown significant benefits in relation to service and cost in comparison to other means of communication.

Western specialists believe the advantages of tropospheric communications are: the use of higher radio frequencies, its many channels (band width) for information transmission, insusceptibility to disruption as a result of high ionization of the upper layers of the troposphere from high-altitude nuclear bursts (other means of communication are very prone to this and may be out of operation for a long period of time), and its usefulness in building lines of communications.

Mobile tropospheric radio stations (for the most part containerized) have been designed in Britain. They replace short-range shortwave stations and are relatively more reliable. These stations use solid state circuits entirely. They are constructed in waterproof stanchions in a housing for easy access for operation and repair.

As the western press notes, communications in a British ground forces operational-tactical command link are arranged and provided by the so-called "net" principle. Multichannel radio links, utilizing shortwave, radio relay, tropospheric and wire communications are integrated by means of network switching centers. This system provides sufficiently reliable communications for units and subunits even under conditions of intensive troop movement. In such cases containerized tropospheric stations are widely used to guarantee direct communications between tactical and operational command link switching centers 100-250 km apart.

According to foreign press reports, the quality of portable military tropospheric stations has increased in recent years, primarily in their technical reliability and capabilities. The change from vacuum tubes to solid state devices and from analog to digital data transmission systems has facilitated this.

Thanks to the creation of new circuit designs and new methods of technical utilization of apparatuses for signal formation and the presence of automatic diagnostic devices in tropospheric communications stations, the number of service personnel has nearly been halved.

British specialists believe that the most modern portable tropospheric station is the H7450 which was tested by the ground forces in the early 1980s, and accepted into service. It is intended to provide secure digital communications for operational-tactical command links. It is planned that these stations will be used in the new British Ptarmigan communications system.

The H7450 station is manufactured by the Marconi company. Its key feature is the use of one antenna instead of the two which were usually part of any earlier models. According to a statement by the manufacturer's specialists, this was made possible as a result of the use of the latest technological developments in circuitry, advanced signal processing methods and new types of modulation. The use of a single antenna increases the station's mobility, significantly simplifies its use, camouflaging and positioning in protective structures, and requires less space. It has a frequency range of 4400-5000 Mhz. It can handle 300 telephone channels over a distance of 250 km.

The station apparatus, which is of modular construction, is assembled in two compact stanchions, whose measurements were chosen to accommodate installation in any standard container, as well as to provide for easy access to the controls, and for regular inspections and repairs. It has tuned functional control devices.

The transmitter's output amplifier is assembled in a klystron, which is air conditioned and which provides an output of 1100 watts, with an input signal



level fluctuation of less than 1 dB. The high-frequency amplifier of the receiver utilizes field-effect transistors and has highly linear characteristics. The noise factor is less than 20 dB, which provides satisfactory reception in rather strong interference. The maximum speed of data transmission is 2048 kb/sec. The 100 kHz selectivity across the band is accomplished with the aid of a frequency synthesizer. The use of time-phased reception and pre-detector mixing at the maximum signal-to-noise ratio, improves the demodulator input signal and eliminates the need for a large antenna.

In the opinion of British specialists, the ability to automatically control the transmitter's output levels in relation to the incoming signal strength, decreases the radio interference on the line, improves operation in conjunction with other means of radio communication and decreases the chance of interception, and the multi-level phase modulation allows for an improvement in channel capacity and eliminates fading caused by tropospheric scattering.

The antenna system (2.9 m high) is collapsible and consists of a parabolic reflector (4.5 m in diameter) and two support frames. It is transported by automobile. A team of three people deploy it in 30 minutes. The antenna can withstand winds of 18 m/sec without the use of special supports.

The foreign press notes that new British tropospheric communications station has a rather high level of reliability, (mean time between failures is 3000 hours). It is equipped for ECM and the effects of electromagnetic radiation. In the opinion of NATO experts, the utilization of the station will improve the opportunities to assure communication for Great Britain's ground forces.

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## FOREIGN MILITARY AFFAIRS

## U. S. ARMOR CAPABILITY SURVEYED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 37-44

[Article by Lt Col N. Fomich: "U. S. Armor"; passages rendered in all capital letters printed in boldface in source]

[Text] Possessed by imperial ambitions, the U. S military-political leadership maintains a course toward an unprecedented buildup of the arms race. An important place in the plan for carrying out Washington's hegemonist aspirations is allotted to the ground forces. Along with an improvement of the organizational-staff structure aimed at raising its combat capabilities, the U. S. Army command is making a big effort to equip it with the latest models of weapons and combat equipment, including tanks.

As noted in the foreign press, the United States occupies the leading place in the capitalist world in armor development. They have developed and produced practically all the types of armored combat vehicles with which their ground forces and marine corps are equipped. A considerable number of models are supplied to the countries in the aggressive NATO bloc. The United States also exports armored vehicles to other capitalist states. Presently, American specialists are carrying out measures for modernizing regular armor and developing new, more-improved models on the basis of the latest technological achievements. Considerable financial resources are allocated annually for this purpose.

Tanks of the M60 series, primarily the M60A1 (more than 4,000 units) constitute the basis of the tank fleet (totalling about 11,800 vehicles). It has been decided to modernize all of them in the future to the M60A3 version. The U. S. Army command plans to have in the ground forces 7,347 M60A3 tanks, of which 1,686 will be new, and the rest will represent M60A1 tanks brought up to a corresponding level. According to foreign press reports, about 48 armored battalions will be equipped with the M60A3 tanks by 1985.

M60A2 tanks with missile and gun armaments (a total of 526 units were produced) were recently withdrawn from the troops and mothballed with the aim of possibly reequipping them as M60A1's and M60A3's, M728 combat engineer vehicles, and AVLB bridge-laying tanks.

The ground forces are also receiving the new M1 Abrams tank. Of the 7,058 being purchased, more than 1,500 have already been delivered. In the second

half of 1985, it is intended to issue an improved version of the tank, preliminarily designated the M1E1. Specifically, it will have a 120-mm smooth-bore gun.

In the U. S. Army's inventory, there are also more than 1,800 M48A5 tanks, including those in the National Guard units and two armored battalions of the American forces in South Korea.

The light M551 Sheridan reconnaissance tanks (a total of 1,700 units were produced) are used primarily for conducting reconnaissance. A large portion of them were replaced by M60A1 tanks. At present, there are no more than 400 light tanks in reconnaissance subunits. Moreover, about 330 were sent to the Army Training Center at Fort Irwin, California, where they were reequipped as moving mock-ups, externally resembling models of Soviet-produced armor equipment (for conducting two-sided exercises). A certain number of M551 Sheridan tanks (without turrets) were used as tracked platforms, on which various weapons were placed for the subsequent testing of incoming models.

Judging from foreign press reports, the U.S. Army has about 18,000 different tracked armored vehicles of various designations, including more than 12,000 M113 armored personnel carriers, over 3,000 M577 command-post vehicles, up to 2,000 M901 self-propelled launchers with TOW anti-tank guided missiles [ATGM], almost 1,000 Bradley M2 infantry fighting vehicles, and more than 70 Commando M706 wheeled armored personnel carriers.

In 1983, the LAV25 light wheeled armored vehicle, having a number of modifications, was accepted into U.S. ground forces and Marine Corps inventory. It is basically intended for use in the Rapid Deployment Force.

The LVTP7 floating tracked armored transporters, which number more than 900 units, are used in the U.S. Marine Corps to deliver troops and freight from landing ships into the depth of a disembarkation area.

The M60A1 MAIN BATTLE TANK began to be received in U.S. ground forces units and subunits in 1962. It is a modernized version of the M60 tank, which, in turn, was designed, based on the M-48A2 model and entered service in 1960.

The hull and turret of the M60A1 tank is cast. The thickness of the hull's frontal armor, as noted in the foreign press, reaches 120 mm and the turret (without gun mantle) is 110 mm thick. A cupola, which traverses 360 degrees, is placed on the turret to improve the profile. Along its perimeter are eight vision blocks, which ensure a circular field of view. Periscope sights (they can be replaced with infrared sights) and a 12.7-mm machine-gun for firing on ground and air targets are mounted on the front-carriage. The mechanic-driver sits in a driver's compartment in the center of the front of the tank hull. There is an infrared (IR) device for night driving.

The 105-mm M68 rifled tank gun, produced in the United States under a British license, is used as the basic armament. The 7.62-mm M73 machine-gun is mounted coaxially with it. The mechanism for laying the gun and traversing the turret is hydraulic, with manual backup. In the 1970's, during the M60A1

modernization, installation of a gun control system with two degrees of stabilization was begun.

The gunner is provided with the M31 day-time periscope, with X8 magnification, which can be replaced by the M32 infrared sight, the passive M35E1, or the M105D telescope. Target illumination is carried out by a xenon searchlight mounted on the gun shield. The tank commander uses the M17C monocular sight-range finder (range measurement of 500 to 4,400 meters). Data from the sight-range finder and a number of other sensing units are taken into account by a ballistic computer, which then enters a total correction in the gunner's sight.

The gun has 63 rounds of ready-service ammunition with armor-piercing kinetic-energy, shaped-charge, armor-piercing high-explosive, and smoke shells, as well as flechette rounds. At the end of the 1970's, the more effective M735 and M774 105-mm armor-piercing subcaliber finned penetrators with carbide-tungsten and depleted uranium cores, respectively, were created.

The M60A1 tank has the AVDS-2790-2A 12-cylinder V-model air-cooled diesel engine and the Cross-Drive hydraulic transmission. It has individual torsion suspension. There are hydraulic shock absorbers on the first, second, and sixth road wheels.

The tank is equipped with a filter ventilation unit, which gives crew members purified air, a roentgen meter, an automatic fire-fighting system, an air heater, a radio set, and a tank intercom. Crossing water barriers up to a depth of 2.4 m is carried out after advanced preparation, and up to 4 m with the aid of special equipment for underwater driving.

In the process of further modernizing the M60A1, besides the gun stabilizer, a new fire control system, which includes a laser range finder, and an electronic ballistic plotter, were introduced. Passive night-vision devices were installed (now the gunner's sight is being replaced by an IR device). A more reliable diesel, a torsion-bar suspension, and a new elastic-metal track were utilized. The coaxially-mounted 7.62-mm machine-gun was replaced. A heat-insulation jacket was put on the gun barrel. A more efficient rapidly-operating fire-extinguisher system was used. Six-barrel grenade launchers were mounted along the side of the front part of the turret for laying smoke screens. As noted above, along with the M1 Abrams, it is the U. S. Army's main battle tank. The M60A and M60A3 were also supplied to the ground forces of Austria, Egypt, Israel, Jordan, Iran, Italy, Saudi Arabia, Turkey, and South Korea.

The M60A2 TANK differs from the previous models by the presence of a new turret with a gun-launcher, which allows firing both conventional artillery shells and the Shillelagh [ATGM] (range up to 3,000 m). The gun has two degrees of stabilization. There is a laser range finder in the fire control system. The M60A2 tanks are found in American troop subunits in the FRG. Judging from Western press reports, it has proven to be lacking in effectiveness, especially in weapon reliability. Thus, it was resolved to replace the weapons with other versions.

The M60 tank was the basis for the AVLB bridge-laying tank for crossing obstacles up to 18 meters wide, the M728 combat engineer vehicle (which has a 165-mm short-barrel gun, bulldozer and crane equipment, and a winch), and a mine roller sweeper for high-speed crossing of minefields (which clear 2 wheel-track lanes each 1.2 meters wide).

The M48A5 TANK appeared in the second half of the 1970's as a result of the further modernization of the M48A1 and the M48A3. The basic works included replacement of the gasoline engine with a diesel and the installation of the 105-mm M68 gun in place of the 90-mm gun. As foreign specialists believe, the M48A5 is close to the M60 in its combat characteristics.

The M48 tank series (except for the later variant) was produced from 1952 to the end of the 1960's. A total of about 11,700 units were produced. At present, a large portion are in the inventories of the ground forces of six NATO countries (Greece, Spain, Norway, Portugal, Turkey, and the FRG), as well as Israel, Pakistan, South Korea and a number of other capitalist states. They were modernized up to the M48A5 level in the FRG, Iran, Spain, Israel, and Turkey.

The tracked chassis of the M48A2 was used in producing the M88 armored repair-evacuation vehicle. The new all-weather 40-mm paired anti-aircraft self-propelled M247 Sergeant York gun, which began production in 1983, was based on the M48A5.

The M1 ABRAMS MAIN BATTLE TANK was adopted into the U. S. Army's armaments in 1980. According to the assessment of foreign military specialists, it is 1.5 to 2 times superior to the M60A1 in fire power, mobility, and defense.

The tank has a classic layout. The hull and the turret are welded. In the front, multi-layered armor is used, similar to the chobham armor used in the new British and West German tanks. For protection against shaped charges, the sides and the upper moving parts are covered with armored skirts. The large angle of inclination of the upper frontal plate of the body is typical for the M1 Abrams. (The mechanic-driver sits in a reclining position near the closed hatch). Significant attention was given also to the isolation of the crew from the ammunition and fuel (basically by installing armored partitions). Equipping the tank with a new automatic quick-reaction fire-fighting system effective for extinguishing the source of the fire by applying a special mixture of "Halon" is planned.

The M1 Abrams tank, which will be released by August 1985, (approximately one-half the total quantity ordered for the U.S. Army) are armed with the M68E1 105-mm rifled gun, which represents several improved versions of the gun installed in the M60-Series tanks. The weapon is stabilized in two planes for control. The tank has a basic load of 55 rounds with the same type of shells as the M60A1 tank, but the fire power is increased through the use of the more advanced fire control system.

The gunner's main sight is a combination (day and night) optical instrument with a built-in laser rangefinder and stabilized line of sight in the vertical plane that allows conducting sufficiently effective fire while moving. There



is also an auxiliary telescope sight. The commander has an attachment [check sight] on the gunner's sight (he can carry out observations and aiming simultaneously with it). There are also a periscope sight for firing the 127-mm machine-gun and six vision blocks along the perimeter of the turret, insuring a circular field of vision.

The electronic (digital) ballistic computer, made of solid-state components, calculates the fire correction angle with sufficiently-high accuracy. The range to the target (from the laser rangefinder), the angle of inclination of the gun's trunion, the velocity of the cross-wind, temperature and air pressure are automatically entered into it. Additionally, the type of shell, the ammunition temperature and the gun tube wear are entered manually. The target's angular velocity is computed. All these data permit computing the lead point for insuring a hit on the target. In the foreign press, it is reported that during the M1 Abrams tank crews' combat trials (while moving over the terrain at about 40 km/hr) hits on the target with the first round were gradually achieved at ranges up to 1850 m. In the computer there is also a unit for automatically monitoring the fire control system's working condition.

The AGT-1500 gas turbine engine, which provides the tank with sufficiently high mobility (specific power is up to 28 hp/ton), is installed in the M1 Abrams. It was the first such installation in foreign tank construction. It is on a level with well-known primary gas turbine engines, and compares favorably with diesel engines. American specialists point out its compactness, high dependability and lower operating costs. The AGT-1500's service life, before overhaul, is roughly 1800 hours (with an mileage of about 19,000 km), which is 2-3 times higher than the corresponding diesel index. At the same time, they note deficiencies, such as the abnormal expenditure of fuel and the complexity of the air cleaner.

The tank has an automatic hydraulic transmission (four forward speeds and two reverse). It has a torsion suspension system. Hydraulic shock absorbers are installed on the first, second and seventh roller road wheels. The tracks have rubberized metal hinges and replaceable rubber pads (the first test models had non-replaceable lugs). It is reported in the foreign press that the service life of these tracks does not satisfy the claimed requirements, since the distance traveled is only half that required (3200 km).

The series models of the Abrams M1 tank are equipped with a system for defense against weapons of mass destruction [NBC defense], fire-fighting equipment, a heater, radio sets, and a six-barrel grenade launcher for laying smoke screens.

The U.S. Army command believes that the entrance of the M1 Abrams tanks into the ground forces will significantly raise their offensive potential. The program for creating and producing the new American tank is estimated at more than 20 billion dollars and the unit cost, as reported by JANE'S DEFENSE REVIEW, already exceeds 2.5 million dollars.

The M1E1 version of the tank, as already mentioned above, will be armed with a 120-mm smooth-bore gun, the same as in the West German Leopard-2 tank. There are 40 fixed rounds in the basic load (with combustible cartridge cases and a

metal sabot) with armor-piercing sub-caliber finned M827 and M829 penetrators (the latter have a Uranium core) and multipurpose M830 (a shaped fragmentation charge). The armor penetration of the sub-caliber penetrators, at a range of 200 m, at a 60° angle of incidence, is about 220 mm.

The 120-mm gun installation increases the tank's weight by more than 2 tons. Therefore, it was decided to partially improve its transmission and suspension system.

The M1 Abrams tank will be equipped with an improved system of NBC defense which will include a filtering system to provide the crew with purified air. Additionally, provisions are being made for the opportunity of creating an overpressure in the combat compartment to prevent radioactive dust from getting inside the tank. There is an appropriate automatic warning system in case weapons of mass destruction are used.

After 1986, work is planned for improving the M1E1 tank's combat characteristics. For this, there will be installed: a new commander's cupola with a panoramic television sight; an automatic target search, detection and identification system; an improved ballistic computer and CO2 laser rangefinder; a driver's television indirect vision device; a new radio set, smoke screen generator and a 127-mm machine-gun; a system for decreasing the engine's infrared emission and a device for rapid refueling. Also, the possibility of replacing the existing torsion suspension with a pneumatic system is being investigated. Most likely, as the U.S. Army command believes, the M1 Abrams and the M60A3 tanks will constitute the armament up to the end of the 1990's, after which they will be replaced by a new main battle tank.

The SHERIDAN M551 LIGHT RECONNAISSANCE TANK became a component of the U.S. ground forces' reconnaissance units in the mid-1960's. A certain quantity of these tanks were employed by the U.S. during its aggressive war in Vietnam, where a number of their deficiencies were exposed. These pertained to the basic unsatisfactory reliability of the engine, transmission, suspension and weapons. Although a large part of the indicated deficiencies were eliminated in the modernization process, the decision was made to replace these machines gradually with M60A1 tanks, and after that with the new M3 combat reconnaissance vehicle.

The M551 Sheridan's hull is made of aluminum alloy and the turret is steel. The main armament, as in the M60A2, is the 152-mm gun-launcher with two degrees of stabilization (there are 20 rounds and 10 Shillelagh ATGM in the basic load). There is a laser rangefinder and an infrared night vision device. The tank is amphibious, is air-transportable and is fitted for being dropped by parachute.

Judging by the information in the foreign press, the M114 tracked armored personnel carrier, which had been used for reconnaissance in the late 1970's, was replaced by the M113 APC, armed with the TOW ATGM. The new M3 CRV, which has already entered the ground forces, should become the American divisions' primary reconnaissance vehicle (in all, planned production is about 3300 units).



The TRACKED ARMORED PERSONNEL CARRIER M113A1 is the modernized (in 1964) version of the M113 APC which entered service in 1960. Since then, approximately 75,000 M113-series armored personnel carriers have been produced. In addition to the U.S., they are used by the ground forces of more than 40 capitalist countries.

The APC's closed hull is made of aluminum alloy (maximum armor thickness is 32 mm). The engine-transmission compartment is located in its forward section. In the back is a ramp for embarking and disembarking. A 12.7-mm machine-gun is mounted above the commander's cupola. The armored personnel carrier's engine is a 6-cylinder diesel and the transmission is hydraulic. It surmounts water obstacles at a speed of up to 5.8 km/hr by using the tracks.

A whole family of tracked armored vehicles was created, based on the M113A1, (command-post, personnel carriers, and forward artillery observers) and also the self-propelled 81- and 107-mm mortars, the Vulcan self-propelled anti-aircraft gun system, the self-propelled TOW ATGM launcher, the tracked transporter-launchers for the Lance, Hawk and Chapparral.

The M2 BRADLEY INFANTRY FIGHTING VEHICLE has been in series production since 1981. It is designated to replace the primary M113 APC, found in the motorized infantry battalions. Taking into account the fact that the present BMP will be employed in close interaction with tanks, special attention was given to its defense and mobility.

The engine and transmission compartment is in the forward part of the vehicle. The commander and gunner are in the two-position armored turret and the infantrymen are located in the landing compartment. The hull and turret are made of aluminum armor. Spaced laminate (steel and aluminum), with the space filled with polyurethane foam, is installed forward and along the sides of the hull. The bottom is reinforced with steel plates for protection against mines.

There is a 25-mm automatic gun, with two degrees of stabilization, with a coaxially-mounted 7.62-mm machine-gun. A TOW ATGM launcher (7 rounds in ready service) is mounted on the left side of the turret for engaging targets, including tanks. The gunner uses a combined (day and night television) sight which is tied in with the commander's check-sight.

There are 5.56-mm submachine-guns mounted in six firing ports along the sides and in the stern of the hull for anti-personnel employment. Additionally, the infantrymen are armed with M16A1 5.56-mm automatic machine-guns and also have a single 7.62-mm M60 machine-gun and 3 M72A2 anti-tank hand grenades.

The V-8 diesel engine is mounted in a single unit with the hydraulic transmission. There is a torsion suspension system with hydraulic shock absorbers on the first, second and sixth road wheels. The tracks are metal with replaceable rubber pads. The vehicle swims obstacles with a speed of 7 km/hr.

The M2 Bradley BMP is equipped with a filtered ventilation system, an automatic fire-extinguishing system and radio sets. A 4-barrel smoke grenade launcher is installed on the forward part of the turret.

Simultaneously, on the basis of the BMP, the M3 COMBAT RECONNAISSANCE VEHICLE was built (with a planned production of 3,300 units), which outwardly is not distinguishable from the M2 Bradley, and has the same characteristics, but the layout of the landing compartment is changed. There are no firing ports, the ammunition storage has been expanded, including the TOW missile (10 rounds). The BRM is equipped with two radio sets, an AN/PRS-15 radar for scouting moving ground targets, and also with instruments for radiological and chemical reconnaissance.

The BMP's tracked chassis is used in the new American missile system for salvo fire (MLRS - Multiple-Launch Rocket System) which will be adopted into the main NATO countries' arsenals.

The question concerning the further modernization of the BMP and BRM is being investigated at the present time. First of all, it touches on modernizing the launcher to permit firing the TOW-2 ATGM. It is also planned to put armor piercing kinetic-energy projectiles in the gun's ready service ammunition and to install a sight for the commander. After that it is contemplated to equip the vehicle with new radio sets, navigation equipment, a television instrument for the mechanic-driver, an NBC defense system, improved diagnostic and service equipment. The cost of the development program and the production of the BMP and BRM (6882 units have been ordered) exceeds 11 billion dollars.

The LIGHT WHEELED ARMORED VEHICLE LAV25, which has begun to enter ground force subunits, and the U. S. Marine Corps will be used primarily in the Rapid Development Force. It is actually the PIRANHA Amphibious wheeled (8 x 8) vehicle being produced in Canada on license from the Swiss firm MOWAG. In all, it is planned to purchase 969 vehicles, 680 of them for the ground forces.

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The main version (it received the designation M1047 in the U. S. Army) has a two-place armored turret with a 25-mm automatic M242 "Bushmaster" gun and a coaxially-mounted machine gun. In the LAV25 (MC) vehicles being adopted into the Marine Corps, besides the three-member crew, six men are located in the landing compartment.

# U.S. ARMOR MODELS' TACTICAL-TECHNICAL CHARACTERISTICS

MODEL NAME, YEAR OF ACCEPTANCE INTO SERVICE	COMBAT WGT	SIZE IN	WEAPON CALIBER	ENGINE	MAXIMUM
	IN TONS	METERS	IN mm, GUNS	HP	SPEED, km/hr
	CREW & TROOP SIZE	HEIGHT, LENGTH <sup>1</sup> , WIDTH	MACHINE-GUNS		ENDURANCE, km
Main Battle Tank M60A1, 1962 (M60A3, 1978)	48 (51)	3.26	105	750	48
	4	6.9 x 3.6	7.62; 12.7		500 (480)
M48A5 Tank, 1975	48	3	105	750	48
	4	6.4 x 3.6	3 7.62-mm		500
Main Battle Tank M1 Abrams, 1980	54	2.9	105 <sup>2</sup>	1500	72
	4	7.9 x 3.6	2 7.62; 12.7		440
Light Recon Tank M551 Sheridan	15	2.9	152 <sup>3</sup>	300	70
	4	6.3 x 2.8	7.62; 12.7		500
Tracked Armored Personnel Carrier M113A1, 1964	11	2.2	---	215	68
	1 (12)	4.8 x 2.7	12.7		480
Infantry Fighting Vehicle M2, Bradley, 1981	21.3	2.9	25 <sup>4</sup>	500	66
	3 (6)	6.2 x 3.2	7.62		500
Light Wheeled Armored Vehicle LAV-25, 1983	14	2.55	25	300	100
	3 (6)	6.4 x 2.5	7.62		500
Amphibious track- ed Armored Pers- onnel Carrier LVTP-7, 1971	23.6	3.12	---	400	65
	3 (25)	7.94 x 3.2	12.7		480
Wheeled Armored Personnel Carrier M706 Commando, 1966	8.6	1.9	---	200	90
	3 (9)	5.96 x 2.26	12.7; 7.62		800

- 1 Overall hull length
- 2 It is planned to arm approximately 3500 M1 Abrams tanks with the West German 120-mm smooth-bore gun.
- 3 There are, in ready service, 10 Snillelagh anti-tank guided missiles and 20 fragmentation HE rounds.
- 4 It has, besides a gun, a Tow anti-tank guided missile installation (with 7 missiles in ready service).

A 6V53T diesel engine and an automatic MT653 hydromechanical transmission is installed in the forward right part of the closed armored hull. Two screw propellers move the vehicle through the water at a speed of 10 km/hr.

A family of wheeled vehicles has been built based on the LAV25. They have the following designations: command-post, transport, repair and evacuation, self-propelled mortars, and the self-propelled TOW ATGM launcher. The creation of versions of the vehicle, armed with 75 mm automatic guns, is considered possible as well.

The AMPHIBIOUS WHEELED ARMORED PERSONNEL CARRIER LVTP7 entered the U. S. Marine Corps between 1971 and 1974. Argentina, Venezuela, Spain, Thailand, and South Korea have some of them.

The typical special shape of the closed armored hull provides for the LVTP7 the necessary stability in a state-3 sea. The engine and transmission compartment is located forward and the landing compartment is aft, where 25 fully-equipped marines are carried. The main armament is a 127-mm machine-gun in an armored turret. The maximum speed in water (with the help of two water jets) reaches 13 km/hr. Based on the LVTP7, command-post and repair-salvage vehicles were built having appropriate equipment.

It was decided to modernize the present armored personnel carrier at the end of the 1980's. The LVTP7A1 version is equipped with a new engine and transmission, passive instruments for night control, a system for determining the vehicles's present coordinates, fire-fighting equipment, control and diagnostic equipment, etc. Along with the revision of the regular models, in 1982, production was begun of a modernized LVTP7A1 version, part of which have already been purchased by a number of capitalist countries.

The American firm Cadillac-Gage produces the COMMANDO WHEELED ARMORED TRANSPORTER primarily for export. It is in more than 20 capitalist countries' ground forces' armament. It is used not only to transport infantry, but also for conducting reconnaissance and patrols and as an armored vehicle with various gun and rifle armament and guided missile launchers.

The first version of the armored transports (V-100) had a gasoline engine, but the later ones have diesels. The Commando's welded hull is water-tight and made of steel plates. Gun ports are located along the sides for conducting rifle fire without dismounting. The primary armament is mounted in a rotary armored turret. Bullet-proof tires with adjustable pressure are used on the

armored transporter. Water obstacles are crossed in stride without preparation.

The tactical-technical characteristics of American armored equipment are given in the table.

At the present time, judging from the information in the foreign press, work is being carried on in the U.S. for developing new tanks which, in combat characteristics, would significantly surpass existing models. Thus, various tank layouts, including turretless versions with externally-carried, remotely-fired guns. American specialists believe that prospective tanks' survivability will be ensured mainly by an improvement of armored defense, an increase in mobility by using powerful engines and effective transmission systems and moving parts, a reduction in overall size, especially height, the application of systems for defense against weapons of mass destruction and quick-acting fire fighting equipment. Noted is the tendency for the wide introduction of effective fire control systems based on the newest achievements of science and technology. This is done despite the sufficiently-high cost of the fire control systems which are reaching 25-30 percent of the tank's total cost.

Although guns are installed in the latest tanks, American specialists are not excluding the appearance on prospective models of missile launchers having in mind the use of the next generation of anti-tank guided missiles, fitted with target-seeking warheads. They are investigating the question of using guns having high muzzle velocities and firing rates (liquid explosives).

At the end of the 1970's, in the U.S., test models of a light tank were built which had high mobility (HIMAG) and improved survivability (HSTV). In their construction, the latest achievements in the field of tank construction were realized. It is reported that the test results of these vehicles will be used during the development of new tanks.

On the whole, the U.S. ground forces command is continuing to pay sufficiently high attention to the development of armored equipment, believing that tanks will remain the most important element in the system of ground forces' armament. This is especially characteristic for the aggressive policies of the present administration, which is striving to achieve superiority over the USSR even in the area of conventional means of armed conflict.

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## FOREIGN MILITARY AFFAIRS

### FRG JET AIRCRAFT TECHNICAL SERVICING DISCUSSED

Moscow ZARUBEZHNOYE 'OYENNOYE OBOZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 54-58

[Article by Lt L. Konstantinov: "Technical Servicing of the FRG Air Forces' TORONADO and ALPHA JET Aircraft"; passages rendered in all capital letters printed in boldface in source]

[Text] Of late, members of the imperialist North Atlantic bloc are expanding measures for modernizing their armed forces. Following Washington's example, several West European governments are attempting to compensate for failure to resolve very complicated economic and social problems by intensifying the arms race and conducting a short-sighted and dangerous foreign policy aimed at confrontation with the Soviet Union and the other socialist community countries. Zealous followers of the current American administration's adventurist course are West German ruling circles, including the Bundeswehr command, which are being allotted the role of a shock force within NATO's joint armed forces in Europe and granted the dubious right of taking part in the adventure against the USSR and the other socialist community countries, so to speak, in the first echelon.

This is precisely why primary attention is being paid to the rearmament, modernization, and maintenance at the highest level of readiness of both the Bundeswehr in general and all of the armed forces services in it. Thus, in the Luftwaffe (the West German Air Force), aviation equipment, in particular the fighter-bombers F-104 and G.91, which have already been obsolete for a number of years, are being replaced by new planes (the Tornado and Alpha Jet, respectively). In the opinion of FRG Air Force specialists, various problems, the solution of which provided certain experience in the achievement and maintenance of a high combat readiness of materiel, arose during the operation of these planes. It is thought, for example, a constant growth of weapon costs makes it necessary to economize by reducing routine maintenance expenditures to the minimum. As the journal SOLDAT UND TECHNIK admitted, when the development of the new planes was completed, production orders were issued and unit and subunit rearmament had been carried out, first and foremost thanks to the more well thought out, precise, and qualified technical servicing and material-technical support, operations was the single economizing reserve.

Information, compiled from foreign press materials, on some of the results of the new Tornado's and Alpha Jet's operational experience in FRG Air Force line units is given below.

The MULTIPURPOSE TACTICAL FIGHTER TORNADO was jointly developed by British, FRG, and Italian aircraft construction firms. Its purpose is to achieve air superiority by striking airfields, control points, radars, and other enemy targets to isolate the combat operations area; to give direct air support to ground forces; and to conduct air reconnaissance. Total production for the three above-mentioned countries is to be 809 Tornados (currently more than 300 have been produced), including 212 for the Luftwaffe and 112 for FRG Naval aviation.

The fighter is a shoulder-wing variable-geometry monoplane with a single-fin tail unit with a controlled stabilizer. Its power plant consists of two tri-shaft turbo-fan RB.199-34R engines, with a maximum thrust of 7,050 kg with afterburner. The basic characteristics of the plane are: a two-man crew, a maximum take-off weight of 26,300 kg; a maximum flight speed of Mach 2.2 at 11,000 meters, an operational ceiling over 15,000 meters; a 550 to 1,200 km (depending on the flight profile) radius of action; and a ferrying range of 3,900 km. The fighter's length is 16.7 m, height 5.7 m, wing span 13.9 m (minimum sweep) and 8.6 m (maximum sweep), wing area 30 m<sup>2</sup>. Armaments are two built-in Mauser 27-mm guns (125 rounds of ammunition allowance) and various suspended weapons, arranged on ten external assemblies (maximum combat load of 7,250 kg).

Judging from Western press reports, a number of demands on the future aircraft's reliability were contained in the tactical-technical instruction in the Tornado's design, which was formulated by West German military specialists on the basis of the existing operational experience of the F-104 Star Fighter fighter-bomber. Their basic demands were the following.

The service life of the airframe must be 4,000 hours under conditions of flight execution at minimum altitude at high speed. It is necessary to mount all assemblies and components such that they could be inspected visually or by using a monitoring device without dismantling.

It was planned to have an engine of modular construction, which would permit making repairs by replacing defective modules. In intervals between preventive maintenance and repair work, inspection was envisaged as being carried out with the aid of a borescope, through access holes in the fuselage without dismantling the engine. In addition, routine monitoring of the state of the engine must be conducted constantly by means of special automatic equipment, which record the readings of appropriate gauges mounted on the various assemblies and units.

On-board electronic equipment was ordered to be constructed on the modular principle to provide for the possibility of changing individual units under airfield conditions without prolonged testing and adjustment. Besides this, the plane had to be equipped with built-in devices for monitoring various systems and their components.

Such high demands on the Tornado's reliability made it necessary to revise a number of systems repeatedly, which complicated its construction and led to an increase of expenditures in technical servicing and repair. The West German experts see a way out of this situation by sharply reducing the number of periodic preventive inspections and even by completely abandoning them and, in the long run, they intend to go over to a principle of so-called technical servicing according to state. A requirement was also advanced that labor expenditures for servicing an aircraft and maintaining it in a combat readiness state under combat unit conditions should not exceed 33 man-hours per hour of flight.

During the manufacture of the plane and its flight tests, special attention was paid to the issue of technical servicing. In particular, instructions and directions were worked out on activities under conditions of a failure of one or another system or apparatus and on the order for eliminating defects. Forecasts were made as to the probable frequencies of equipment failures and the time necessary for their elimination under field and combat conditions, the needed qualifications of ground technical personnel, and the necessary number and types of monitoring and testing devices, special instruments, and spare parts.

As the foreign press pointed out, a program of measures for maintaining the Tornado at a high level of combat readiness was worked out. However, in a number of cases, it did not correspond to everyday reality and was regularly changed in practice. In this connection, great attention was paid to the collection of various statistical data and their analysis and to a constant comparison of the number of planned and conducted operations and work with real requirements.

Many components of the on-board equipment and systems had limited service life. In the initial stage of the fighter's operation, it was planned to change components at relatively short time intervals to prevent running unnecessary risks. Numerous preventive inspections were conducted more frequently than were actually necessary. The Western press points out that FRG Air Force and industry specialists were recently assigned the task of working out--on the basis of the Tornado's operational experience--a program of measures for lengthening the service life of the on-board individual equipment components and increasing the intervals between planned preventive and repair work in order to gradually go over to technical servicing according to state.

At the same time, it was pointed out that the functioning of a number of on-board systems and several types of equipment do not coincide with forecasts, since indicators are often below planned level. Thus, simultaneously the questions arose concerning raising their reliability and improving their work capacity, the resolution being entrusted to both the developers and technical line unit personnel. Special attention in materiel conservation and raising service life is paid to the maximum use of modern monitoring and testing devices (on-board and ground-based).

The results of the Tornado's first year of operation were cited in the West German military press. It was indicated, in particular, that the number of

failures and defects, without whose elimination the airplane could not be released for flight, exceeds by 2 to 3 times the level considered permissible in the technical specifications presented to industry. A double conclusion is drawn from this fact. First, the fighter, as a whole, still needs improvement. Second, since 30 to 50 percent of the supposed defects are not being corroborated on examination, this means that the process of retraining the technical staff and their assimilation of the new materiel is not completed. It is also reported that most frequently defects (over 50 percent) are registered in the landing gear, the hydraulic and fuel systems, the engine electric control system, the plane control system, and the instrument and radar equipment.

It is noted that all types of the Tornado's preparations and inspections require considerably more labor expenditure and time than was envisaged. This is explained mainly by the appearance of prolonged control measures, which were introduced in the initial operating stage. At the same time, it is believed that the first planned monitoring inspections, after 300 flight hours, would require relatively little labor expenditure and time.

FRG Air Force specialists express dissatisfaction with the fact that the work of many separate systems of the electronic equipment, manufactured by different firms, was not sufficiently coordinated with each other during testing. Thus, during operation, there arose many difficulties with their combining and switching in to the central on-board computer. In addition, it turned out unexpectedly that the latter's program is incomplete and must be developed all over again, although the incompatibility of a number of electronic systems with each other makes this task extraordinarily difficult. Nonetheless, as West German experts believe, the results of the Tornado's first year of operation testifies that the plane fairly easily withstands collisions with birds, reacts well to certain damages and failures, as well as errors committed by the pilots.

The foreign press notes that there are considerable difficulties in the organization of the Tornado's technical servicing. Thus, for the present, crews lack the necessary amount of ground-based monitoring and testing equipment, special instruments, and individual components of the automated monitoring and testing installation. They do not have testing programs and many types of technical documentation. Frequently, the Air Force is forced to take needed devices, instruments, and spare parts from industry for provisional usage. Some types of on-board equipment are still repaired at the manufacturers' enterprises, and not in the air units. Practice shows that in its current form, the Air Force's central automated control system with terminals in the squadrons is not coping with the task of administering material and technical supplies. Thus, it is intended that each squadron create its own automated control system.

It is envisaged placing a considerable portion of the complex repair work, for example, monitoring inspections of airframes, changing engines, and repair of their modules and various electronic equipment in the Air Force's repair shops. However, because their materiel and technical support (MTO) is not arranged at the proper capacity, many repairs (especially on devices and



equipment) are carried out currently in industry shops, affecting their execution times.

The central control system of the Air Force's MTO is being faced with the task of planning and directing the repair of about 13,000 engine modules and 450,000 replaceable units and components, improving individual systems of the planes (several hundred annually), installing, servicing, and calibrating almost 2,500 ground-based monitoring and testing instruments, preventive inspections and repairs under factory conditions of 322 planes after each 900 hours of flight, as well as daily current monitoring of MTO.

On the whole, as FRG military specialists believe, the difficulties existing in the organization of the Tornado's technical servicing are temporary in nature. The fighter's line unit assimilation proceeds as planned. Essentially all planned flights are completed. Combat readiness of the planes is being ensured at the proper level.

The LIGHT GROUND ASSAULT AIRCRAFT ALPHA JET is developed jointly by the French firm Dassault-Breguet and the West German firm Dornier. The FRG Air Force ordered 175 planes (with the right to order 25 more). Their delivery to line units was completed at the end of 1982. The ground assault aircraft represents an all-metal monoplane with high-incline swept-back wings, a single-fin tail unit, and a tricycle landing gear with nose wheel. The power plant consists of two turbo-fan Larzac 04-C5 engines with a static thrust of 1,350 kg. The basic characteristics of the plane are: two-man crew, maximum take-off weight of 7,500 kg, maximum flight speed of 915 km/hr at 10,000 m, an operational ceiling of 14,000 m, an operating radius of 520 to 910 km (depending on the flight profile), on a ferrying range of 2,700 km. Measurements are a length of 13.23 m, height of 4.19 m, wing span of 9.11 m, and wing area of 17.5 m<sup>2</sup>. The ground assault aircraft's armaments depend on the missions to be resolved. The combat load (maximum of 2,500 kg) is placed on five external suspension assemblies (one under the fuselage and two under the wing panels) and can include mounts for the 27 mm Maverick or the 30 mm Defa, bombs and bomb cassettes up to 400 kg, and launchers for 68 mm non-guided rockets, the air-to-ground Maverick guided missile, and the air-to-air Magic.

The foreign press points out that since the Alpha Jet's production technology is basically conventional--if one excludes the engine, constructed on the modular principle, and the air brakes, produced from composite materials--there are no apparent reasons for any radical changes in the existing MTO system. However, in striving to raise the number of constantly combat ready planes and their reliability, as well as to reduce technical servicing expenditures, FRG Air Force specialists were forced to adopt various measures.

In particular, it is intended to raise the ground attack aircraft's reliability by improving its production technology, duplicating basic systems, and manufacturing airframes with safety and functional margins, which exceed the service life planned for the planes by 5,000 flight hours (with this it is implied that works on preventing or decelerating the airframe's aging process are not even being planned). It is proposed to upgrade technical servicing conditions by simplifying access to basic systems and units and conveniently placing them on the plane. It is also intended to reduce preventive repair



work gradually to a minimum and simultaneously increase the number of monitoring checks of the functions of on-board equipment and systems, and then go over to a principle of servicing according to the state.

In 1978, before the Alpha Jets were deployed in the combat units, it was planned, after 1986, to perform thorough repairs on 40 aircraft annually (a labor expenditure of about 8,000 man hours per plane). In practice this would mean that independent of the actual degree of wear on individual systems and the plane as a whole, it would be withdrawn from the combat units for a long time. After studying the experience of two years of operation in the forces, it was decided to replace thorough repairs by a so-called inspection under factory conditions. Then, from the results of the inspection, only those repairs actually necessary would be carried out (a labor expenditure of about 3,000 man-hours per plane) .

In addition, beginning in 1983, the Air Force, jointly with industry, planned annually, over 7 years, to subject two or three planes to an analytical inspection, which represents an in-depth inspection for the purpose of revealing weak spots in the construction of the plane, its individual systems, and assemblies. With this, all complaints received from the units and data on failures and defects must be taken into consideration. The task of exchanging information received from such inspections is entrusted to the Dornier factory and one of the Air Force's air repair shops. After careful study, necessary changes are to be made in instructions, technical servicing recommendations are to be issued, and times for conducting one or another operation are to be set. Requirements for making construction changes can also be advanced, if the need arises.

Judging from Western press reports, a lengthening of intervals between some periodic servicings on the airframe, the motor unit, and a number of systems is ascribable to the initial results of analytical inspections. For example, monitoring inspections of catapult seats are now conducted every 18, 36, and 72 months in place of the previously prescribed 15, 30, and 60 months respectively. The service life of hydraulic pumps was increased from 500 to 600 flight hours.

The Western press points out the striving of technical servicing personnel to carefully plan all repair and preventive work in order to avoid long forced down-time of the Alpha Jets and their irregular operation. However, in the West German specialists' opinion, the servicing process is heavily complicated by the large number of assemblies and equipment elements with a limited service life that need to be changed periodically. Thus, the Alpha Jet has 100 such assemblies (in the G.91 there were 82), 61 of which are in the emergency rescue system. It is thought that 60 percent of the assemblies can be changed in the air squadron workshops and 40 percent in the naval squadron workshops.

Work on changing assemblies considerably reduces the percentage of combat ready planes. Previously, changes were conducted during regular checks of the state of the airframe and, thereby, the service life of the assemblies was not exhausted in many cases. Now, instructions and regulations prescribe a maximum life service usage, although they can be changed earlier, when

necessary. A complete exhaustion of service lives must be achieved also because of the fact that many assemblies are in short supply (for example, the head rest assembly on the catapult seat). West German specialists stress that until a normal supply is fully set up, the technical services cannot work efficiently. Because of the shortage of spare parts and several types of instruments and devices and as a consequence of an insufficiency of the ground personnel's experience and qualifications, the labor expenditure norms for Alpha Jet technical servicing, worked out in 1978, are not presently being implemented.

The Alpha Jet was the first FRG Air Force plane to be equipped with an engine of modular construction. It is thought that it has several advantages in comparison with other engines since the search for defects (conducted on the unit, but not on individual components) and repair are simplified. But in practice, as the journal SOLDAT UND TECHNIK testifies, everything is not so simple. For example, thorough repair is still planned for the engine and only two of eight modules do not have restrictions on periods of service. At the same time, it is noted that during the Alpha Jet's operation in line units some positive results were attained in servicing the engine. In particular, the periods between preventive repairs were doubled, changing an engine now requires about one hour, the technical staff has learned to conduct some types of work without removing the engine from the plane. Accumulated experience allows ascertaining the actual service life of modules and establishing realistic requirements for spare parts. In those cases when the data strongly differs from the planned, changes are made in list of orders to firms.

All of the above testifies to the fact that great attention is being paid in the FRG Air Force to the question of servicing aviation equipment, since, as West German experts believe, this affects essentially the aircraft fleet's combat readiness.

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## FOREIGN MILITARY AFFAIRS

### U. S. PAVE TIGER PILOTLESS AIRCRAFT DESCRIBED

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 59-60

[Article by Col I. Mironov: "The American Pilotless Aircraft Pave Tiger"]

[Text] In the opinion of Western military specialists, the struggle with an opponent's air defense and, in the first instance, with his anti-aircraft resources, is one of aviation's most important missions. It facilitates achieving air superiority and, in the end, ensures the successful conduct of combat operations. As a rule, execution of this mission is entrusted to special aircraft, which are equipped with electronic jamming devices and carry on board various air-to-ground weapons, including anti-radar guided missiles. At the same time, it is considered expedient to use pilotless aircraft, the development of which has been conducted in a number of Western countries in past years, in the execution of the air defense system suppression mission in order to reduce the losses of piloted planes. Some of the models created, for example, the Israeli Scout and Mastif<sup>1</sup> have already been used in practice under combat conditions.

In the United States, Boeing has developed for the Air Force a small-scale, one-time use pilotless aircraft, the CGM-121A, Pave Tiger, which is intended for the search and destruction of electronic emitting equipment, mainly radar stations, within the opponent's anti-aircraft missile and artillery installations (thus, in the foreign press, this device is sometimes called anti-radar).

Pave Tiger is made in the configuration of a "duck," with a low-mounted swept wing, the terminal portion of whose arm turns upward and acts as a keel, and with front horizontal control surfaces. In the developer's opinion, such an aerodynamic configuration ensures the possibility of changing the location of the pilotless aircraft's center of gravity within wide limits, which allows it--depending on the missions assigned--to carry a large payload or considerable fuel supplies. The lift augmentation means (control rudders at the end of the arm and spoilers) and the front horizontal control surface have electronic drives. The airframe is made mainly from composite materials, which, in addition to the device's small geometric size (length 2.13 m, wing span 2.59 m, and fuselage maximum diameter of 0.61 m) ensures its small effective scattering cross-section.

The propulsion plant consists of a two-cylinder, two-stroke 28-hp, piston air-cooled engine, fitted with a four-blade pusher propeller (operating at 6,500 RPM). The Western press notes that with a fuel expenditure equal to 3.9 liter/hr, on-board supplies are enough for almost 10 hours of flight (provided there is a minimum-weight payload). It is also noted that the operation of the engine in the air causes an increased noise level. However, this corresponds to the needs of the Air Force, since, as American military specialists think, in this case the pilotless aircraft causes an additional so-called harassing effect, which diverts the anti-aircraft missile and artillery crews' attention and makes them fire a gun or launch a missile at it.

The pilotless device is equipped with the most simple navigational equipment, which has low value, but also low accuracy. This is not considered a deficiency because guidance to an emitting target is assisted by an on-board target seeking head and the task of the navigational system is only to bring the pilotless aircraft into the assumed target region in accordance with a pre-flight program. Since the device is a fully automatic system and is not tied to transmissions of data from the ground and, since its guidance is executed with the assistance of a passive homing head, it is considered that it possess practically absolute interference resistance when in the air.

The pilotless aircraft takes off from the ground. A standard cargo container (2.4 x 2.4 x 6.1 meters) is brought into the ground launch complex. It contains 15 launch containers, each of which accomodates one aircraft with folded wing arms (launch weight of 115 kg), a guide rail, an electric starter, as well as a mobile generating set and an electronic launch panel (Fig. 1). The launch procedure for the Pave Tiger pilotless aircraft is given in the foreign press as follows. After receiving the command to launch, the cover of the launch container folds back, the guide rail with the pilotless aircraft on it moves forward (with this the wing arms sweep around into working position), the engine starts, and the solid-propellant launch booster is cut in. After 1.7 seconds, the aircraft accelerates to about 130 km/hr, after which it passes to a prescribed flight regime (maximum speed of 185 km/hr) along a pre-programmed route to its assigned target area. There, the aircraft either will be directed by the seeker to an emitting target, destroying it with an explosive charge stowed on board, or begin to loiter over it so as to draw fire from ground-based active air defense means.

The American Air Force command pins great hope on Pave Tiger, thinking that their massive use in combat operations in the European theater of war will allow reducing sharply the number of both on-board EW means, placed on strike planes for breakthrough of the opponents air defense system, and special EW planes for the execution of this mission. In addition, the possibility of using the pilotless aircraft as false targets and for over-the-horizon target designation and relaying radio signals is envisaged.

Judging from foreign press reports, the Pave Tiger flight test program, in which fourteen Boeing-built test models took part, was completed at the end of 1983. Manufactured in a 2,000 unit batch, each serial aircraft costs about \$50,000. According to a Boeing representative's statement, newly created production capacities permit organizing an output of 6,000 pilotless aircraft

per year. Total expenditures for designing and producing Pave Tiger are estimated at \$145,000,000. Receipt of these aircraft in line units of the tactical air command and the U. S. Air Force command in Europe is expected in the current year.

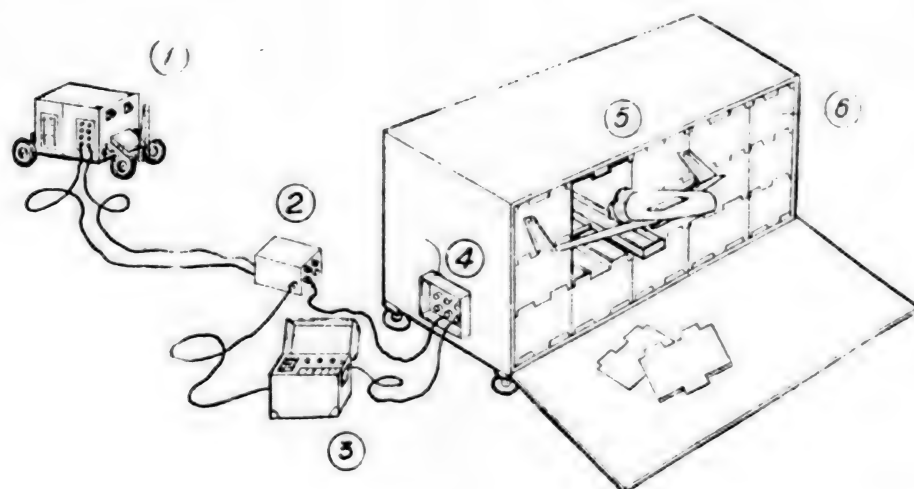


Fig. 1. Pave Tiger Launch Installation

- |   |                               |
|---|-------------------------------|
| 1. Electrical generator                   | 4. Launch control panel       |
| 2. Power supply distribution panel        | 5. Standard freight container |
| 3. Launch circuit control and check panel | 6. Launch container           |

It is planned to deliver the pilotless aircraft in factory packaging, in which they can be stored for 5 to 10 years without technical servicing. It is also noted that, at present, tests on the long-term storage of various aviation fuels for the Pave Tiger are being conducted to determine the possibility of delivering them fully fueled.

The creation of such offensive means of destruction and their introduction into the forces once again testifies to the broad-scale measures of the U. S. imperialist circles aimed at preparing to unleash a new war.

<sup>1</sup> For detail on them, see ZARUBEZHNOYE VOENNOYE OBOZRENIYE, No. 11, 1982, pp 46-49 -- Editor.

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FOREIGN MILITARY AFFAIRS

NUCLEAR SUBMARINE BALLISTIC MISSILES DISCUSSED

Moscow ZARUBEZHNOYE VOYENNOYE OBORZRENIYE in Russian No 8, Aug 84 (signed to press 7 Aug 84) pp 72-74

[Article by Capt 3d Rank A. Smirnov and Lt A. Smirnov: "Nuclear Submarine Ballistic Missiles"]

[Text] The frantic preparations of the aggressive NATO countries' militaristic circles for unleashing a war against the socialist states are manifested in the unceasing arms race and, in particular, in the improvement of ballistic missiles deployed on US, British and French Navy nuclear submarines (their basic characteristics are cited in the table). The missiles are capable of delivering to the target warheads of great power which are contained in single or dispersable multi-charge nose cones. The latter can contain more than ten warheads, each with a TNT-equivalent of tens or hundreds of kilotons.

The first American ballistic missiles, Polaris A-1, A-2 and A-3, which have already been withdrawn from service (see figure), were equipped with nose cones with a single nuclear warhead. The French M-20 is now equipped with this particular warhead. Warhead yield was increased with each modification. The Polaris A-1 missile's yield is 0.5 Mt, the Polaris A-2's is 0.8 Mt and the Polaris A-3 and the M-20 have yields of 1 Mt.

Additionally, the warheads' quality has improved along with the development of missile technology. At first, the single-charge nose cone was replaced by a multi-charge MRV-Type with uncontrolled-scattered warheads and then by nose cones which dispersed the warheads in a controlled manner. Thus, in 1968, the POLARIS A-3 was equipped with an MRV-Type nose cone which carried three warheads, each having a yield of 0.2 Mt. It was designated the Polaris A-3T and later, British submarines were armed with it.

Missiles, such as the ones with a single-charge nose cone, are designed for firing at large-area targets, i.e., industrial and administrative centers. Warheads are separated simultaneously from the single-charge and multi-charge nose cones at a calculated point and travel on to the selected target by ballistic trajectory. Thus, they are scattered over the target area at random.

# SSBN MISSILES' BASIC TACTICAL-TECHNICAL CHARACTERISTICS

CHARACTER- ISTICS	POLARIS A3T British	POSEIDON C3 USA	TRIDENT I USA	TRIDENT II USA	M20 France	M4 France
Range, km	4600	4600	7400	Greater 11,000	Approx 3,000	Approx 4,000
Launch wgt in tons	15.9	29.5	32	57.5	20	35
Length, m	9.45	10.36	10.36	13.95	10.4	11.05
Diameter, m	1.38	1.88	1.88	2.1	1.5	1.93
Accuracy of fire - circular probable (CEP), km	0.9	0.45	0.45	0.1	Approx 1	**
Type war- head	Multi- charge MRV	Dispers- able MIRV	Dispers- able MIRV	Dispers- able MIRV	Single charge	Multi- charge MRV, later a MIRV
No. of war- heads and their yeild	3 x 0.2	10 x 0.05	9 x 0.1	7 x 0.6 14 x 0.15	1 x 1	6 x 0.15

Western military specialists consider that nose cones selected for firing at small-area targets are not sufficiently effective because they are not guided in flight and do not permit "aimed fire" on an particular target. In their opinion, this problem can be solved by using MIRV-type ballistic missiles equipped with individually-guided warheads. Several warheads are placed in them (for example, the Poseidon C-3 missile has 10 warheads, each with a yield of 50 kt). Each can strike its own target for which it was pre-programmed. This is accomplished as follows. At a predetermined point in the trajectory, in accordance with the firing mission, the nose cone is given a certain orientation in space and, upon achieving the necessary velocity, the first warhead, on a computer command, is dispensed in the correct direction. After this, the nose cone moves to the next pre-programmed position, and the dispersal process is repeated.

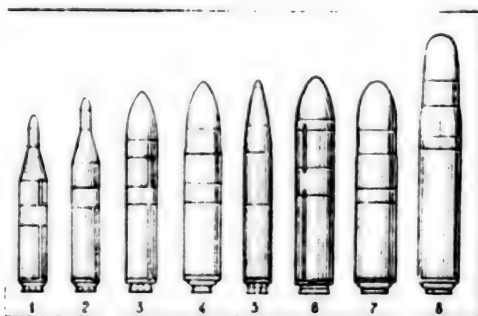
The foreign press notes that the individual warheads, from the point of view of overcoming anti-missile defense systems, do not have substantial advantages over single-charge nose cones. However, firing them can contribute to the

"over saturation" of missile defense radar systems and thus insure that some of the missiles in the attack will break through to the target.

With the adoption in the U.S. of the Poseidon C-3 ballistic missile, and equipping Lafayette-Class submarines with it, the number of warheads carried in the C-3 increased more than threefold over the Polaris A-3T.

MIRV-Type nose cones are also being developed in Great Britain and France. Thus, it is envisaged that the scatter-type multi-charge nose cones of the ballistic missiles installed in British submarines will be replaced with the MIRV-type dispersable nose cones, carrying 6 warheads with a yield of 40 kt each. The radius of their "aim point" is greater than the radius of the MRV-Type nose cones' scattered warheads and, judging from Western press data, it will reach 565 km.

By now, the development of a MIRV-type nose cone for the new French MM-4 ballistic missile, which will carry six 150-kt warheads, has already been completed. The missile has a range of 4,000 km. In the foreign press, it is reported that as early as 1992, the number of warheads carried in French missiles will increase by a factor of 7.4.



Ballistic Missiles for Submarines

- |                      |                     |
|----------------------|---------------------|
| 1. Polaris-A1 (USA)  | 5. M20 (France)     |
| 2. Polaris-A2 (USA)  | 6. M4 (France)      |
| 3. Polaris-A3 (USA)  | 7. Trident-I (USA)  |
| 4. Poseidon-C3 (USA) | 8. Trident-II (USA) |

The speeding up of the work on the qualitative improvement of the submarine ballistic missile arsenal in the main capitalist countries, primarily in the USA, is evidence of the intentions of the political-military leadership, not only to preserve a sufficiently-high level of strategic forces' development, but also significantly to increase their nuclear missile potential. All this, once more, reaffirms that the USA and the other NATO-bloc countries are continuing to excite the arms race and are preparing new weapons of aggression. This is precisely why, in the USA, from the beginning of the last decade, they began to develop the Trident nuclear missile system with a new

generation of ballistic missiles whose range is more than 11,000 km. The creation of weapons for it, according to Western press data, assumes the development and production of Trident-I ballistic missiles and arming the already-built Ohio-Class submarines and the 12 Lafayette-Class submarines, which are being activated: the Trident-II missiles are planned only for the Ohio-Class SSBN.

The Trident-I (accepted into service in 1979) is a 3-stage ballistic missile with a solid-fuel engine and a MIRV nose cone. It is the same size as the Poseidon C-3 (launch weight about 32 t), with practically identical accuracy. The new missile is capable of striking targets 7400 km away. Despite the significant increase in range, it does not equal the Poseidon in accuracy.

The Trident-II missile, in comparison to the Trident-I, will have an increased range (more than 11,000 km), a greater diameter (approximately 2.1 m), better accuracy (circular error probable (CEP) up to 100 m) and greater launch weight (57.5 t). The foreign press notes that a MIRV-type dispersing nose cone is being developed for it. In American specialists' opinion, thanks to Trident-II's great accuracy, it will be able to conduct strikes on small-area, well-defended targets (underground command posts, intercontinental missile silos, etc.). The introduction of such missiles into the weapons system of the U. S. Navy is expected at the end of the 1980's. Additionally, in accordance with the Anglo-American agreement, signed in March, 1982, it is planned to equip four new British SSBNs with Trident-II missiles.

The foreign press bears witness to the speed-up in the development and improvement in the principal NATO countries of the means of a nuclear missile attack, including naval ballistic missiles. The Soviet people are attentively following the aggressive bloc's military preparations and believe that the USSR's armed forces will be able to stop any onslaught of the imperialists against our Motherland and the other states of the socialist community.

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FOREIGN MILITARY AFFAIRS

RECONNAISSANCE-STRIKE COMPLEXES

Moscow KRSNAYA ZVEZDA in Russian 14 Feb 85 p 3

[Article by Lt Col A. Sergeyev, based on foreign publications]

[Text] "So-called reconnaissance-strike complexes are being mentioned increasingly more often in the foreign military press. What does this term mean? Please tell us about this new weapon."

Senior Lieutenant V. Velichko, cadets  
A. Grigor'yev and Ye. Anatol'yev

In 1982 Pentagon strategists adopted the conception of the "air-to-ground engagement." Late last year the conception of the "deeply disposed strike" against troops and objectives of Warsaw Pact countries, known as the "Rogers Plan," was examined at a routine meeting of the NATO Council. To put it briefly, this conception essentially boils down to the idea that American troops (the NATO bloc in another case) must possess conventional arms which would permit them to make "preventive" massed strikes at the very start of a war not only against troops but also against other objectives (communication and control posts, arms depots, missiles, airfields and so on), disposed in depth within the territory of the Warsaw Pact countries. In this case the main hope is laid upon the extensive use of aviation, cruise missiles and reconnaissance-strike complexes. It is no accident that emphasis is placed on the latter. In the minds of proponents of military adventures, they are precisely what will primarily "determine the success of planned operations."

As is noted in the foreign press, a new direction in the development of so-called high-precision weapons clearly revealed itself at the beginning of the efforts to create such complexes in the U.S. and NATO armies. The idea is to achieve practical "combination" of both the strike resources themselves and everything that supports their combat application into a single automated system.

The plans call for using, as the strike resources of reconnaissance-strike complexes, cluster bombs and rockets equipped with homing warheads capable of selecting targets on the background of other objects and terrain features. Moreover the complexes include technical reconnaissance, communication and



navigation resources, control systems, data processing and display systems and command generating systems. In general all of this represents an integrated automated control system which, foreign experts suggest, will make it possible in the future to completely exclude man (an operator) from the process of guiding a weapon to a target.

Judging from foreign press publications, the USA is presently developing two types of reconnaissance-strike complexes--the PLSS and Assault Breaker. Work on the PLSS project began in 1977. Two such complexes are to be adopted in 1986. They are to be located at bases within the Central European Theater of Military Operations (using the terminology of NATO specialists).

The PLSS complex, the journal ARMY reports, is intended to be used against ground radio-frequency emitting targets, and primarily for annihilation of radar stations in the enemy's air defenses. It includes reconnaissance and radio relay airplanes, a ground control center, a network of navigation points and strike resources.

TR-1 airplanes, which have a practical ceiling above 20,000 m, a cruising speed on the order of 700 km/hr and a patrolling time of 12 hours, are to be used for reconnaissance and for relaying radio signals. It is believed that three TR-1's would be able to support the combat operations of a complex. It is felt that given such a quantity, the possibilities of the range difference method of determining the coordinates of targets would be realized to the fullest.

In this case, the press notes, the patrol routes of the airplanes would be located over the territory of friendly troops, 100-150 km from the front line.

Reconnaissance airplanes will relay collected data to ground control centers, the task of which is to identify targets on the basis of reference data stored in the computer memory, determine their coordinates, select the principal strike resources (in particular, F-4 and F-15 airplanes armed with guided cluster bombs) and automatically guide them to their targets.

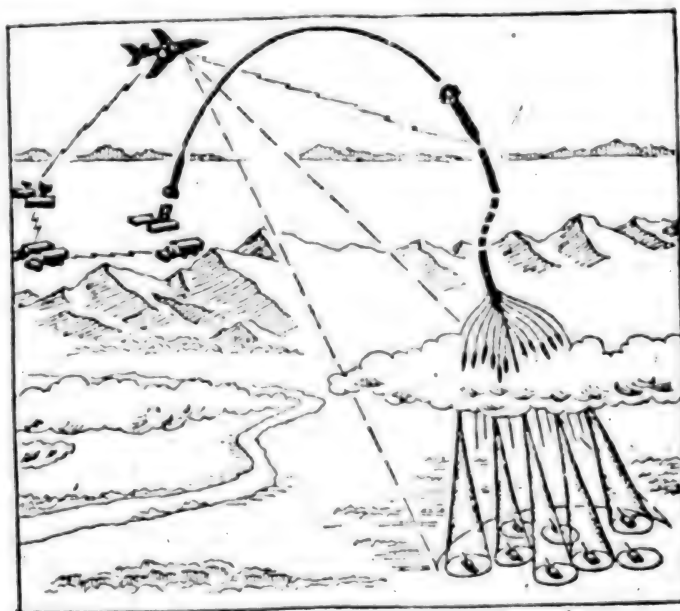
Foreign specialists hope that the PLSS complex will make it possible to guide any type of airplanes and guided air-to-ground and ground-to-ground missiles. This would simply require outfitting them with special radio-command guidance blocks. According to data in the weekly AEROSPACE DAILY, military circles of the USA are considering the issue of including the F-16 and the MRASM cruise missile (still in the planning stage) in the composition of the resources that can be guided by the PLSS complex. It is felt that the PLSS complex will make it possible to scout and attack targets located up to 550 km from the front line within a zone 500-600 km wide.

Reconnaissance-strike complexes such as Assault Breaker are intended primarily against tank groupings in back-up echelons located up to 200 km from the line of contact between the troops. As follows from communications in the foreign press, the reconnaissance and guidance airplane of this complex is outfitted with a Pave Mover radar station characterized by higher covertness of operation. It can scan the ground surface to obtain a visual image of the terrain, detect and select moving targets and conduct simultaneous radar tracking of strike resources and a group target.

The airplane's patrol route is planned out ~~down~~ within the disposition of friendly troops, up to 40 km from the front line. The mobile control center is located approximately the same distance away. Its equipment can be used to control the work of radar stations and to display acquired radar data on several tactical situation screens.

The INTERNATIONAL DEFENSE REVIEW reports that T-22 operational-tactical rockets (created on the basis of the Lance rocket) and T-16 rockets (created on the basis of the Patriot rocket) were tested as strike resources for this complex. The cluster warheads of these rockets are intended to strike a group target such as a tank company. The warhead is filled with homing projectiles--miniature TGSM rockets. One cluster can contain 14-24 or 56-96 units. Another variant of the ammunition exists--low-caliber SKET bombs equipped with infrared sensors.

Depending on where group targets are located on the terrain, the ammunition can be scattered over a circular or elliptical area in response to a command from the control center. It is assumed that tanks will be struck somewhere in their upper armor. According to calculations made by foreign specialists a complex should track up to six group targets (each containing 10-12 units of armored equipment) and simultaneously guide weapons to two of them.



Plan of Action of an Assault Breaker Reconnaissance-Strike Complex

According to a report in the journal MILITARY TECHNOLOGY two major programs will be carried out in the course of the planning of reconnaissance-strike complexes--"Jay Stars" and "Jay Takms" [transliteration]. The former foresees creation of a side-scanning reconnaissance radar equipped with reconnaissance data processing and display systems. According to data in the handbook

"Forecast Associates," about \$230 million are to be spent on the "Jay Stars" program just in 1985 alone. Different models of the reconnaissance radar station are to be evaluated in tests planned for 1986.

The goal of the "Jay Takms" program is to design and initiate series production of operational-tactical ground-to-ground and air-to-ground missiles intended for Assault Breaker. This program is also rather "voluminous" in financial respects.

The radar station and the control center of the reconnaissance-strike complex are to be located aboard a wide-body C-18 (Boeing) aircraft, which will conduct reconnaissance and then guide strike aircraft and guided weapons to selected targets.

Mention is made of other projects as well in the foreign press. For example, the journal INTERNATIONAL DEFENSE REVIEW reports the American ground troops are considering the possibility of using two variants of the complex--to support a division (to a depth of 60 km) and an army corps (to a depth of 200 km). In these variants the reconnaissance radar is to be installed aboard an OV-10 Mowhawk or a TR-1. The tasks of the latter would include detecting targets and generating data for conventional artillery and MLRS multiple-launch rockets systems equipped with cluster antitank ammunition. All information on the targets is to be transmitted from the airplane to the command post of the division or the brigade.

Foreign military specialists also suggest that the B-52 strategic bomber could also be used against armored equipment. This bomber is to be outfitted with reconnaissance radar and armed with 20 rockets developed in the "Jay Takms" program. The plan is to locate all elements of the reconnaissance-strike complex aboard the aircraft.

In a word, this weapon can be classified as an offensive weapon, and it is being created with the goal of achieving military superiority over states of the socialist fraternity and providing a one-sided advantage to Western armed forces making surprise attacks and conducting lengthy combat operations.

The line of reasoning suggested by NATO leaders that application of the new conception would supposedly reduce the danger of nuclear war in Europe is devoid of all grounds, and deliberately false. As is evidenced by the press, in terms of their destructive possibilities, new models and systems of conventional weapons are becoming more like low-power nuclear weapons. Moreover in adopting these conceptions, the Pentagon and NATO have no intention of rejecting the possibility of a nuclear first strike. Evidence of this can be found in deployment of American first-strike missiles in Europe.

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AFGHANISTAN

APN CLAIMS SUCCESSES AGAINST AFGHAN BANDS

Leningrad LENINGRADSKAYA PRAVDA in Russian 31 Jan 85 p 3

["Response to Readers" section: "Who Is Blocking The Political Settlement in Afghanistan?"]

[Excerpts] Readers K. Loginova, I. Kisloyev, G. Kondrat'yev and others are asking the question given in the heading. At the request of the editor, Novost' Press Agency commentator V. Generalov is responding to the readers.

But despite constantly increasing financial aid to the terrorist bands and their growing reliance on modern types of weapons, DRA [Democratic Republic of Afghanistan] armed forces are inflicting defeats that they can feel. In 1984 bands were routed in the Panjshir and Andarab. Successful military operations were conducted against bandit formations in the provinces of Herat, Nangarhar and Paktia and also in the northern part of the country. In the last seven months bandits have lost 15,000 killed and 2000 taken prisoner. 2563 individual weapons, including rocket launchers, anti-aircraft rockets, recoilless rifles, mortars, hundreds of heavy machine guns and approximately 3,000 anti-tank and anti-personnel mines have been seized.

Successes in the struggle against counterrevolutionary bands that are sent in from outside the country reflect the process of strengthening the revolutionary power of the DRA and the fact that the population of the country is rallying around it. In addition to the army, bands of tribal home guards militia and bands of defenders of the revolution organized from the civilian population are acting as security forces and stsarandoy (popular militia) to guard the conquests of the April revolution. Growing support for the policies of the Popular Democratic Party of Afghanistan and the DRA government is easily explained. The socio-economic transformations that are being carried out and the guarantee of real democracy in the country support the interests of the absolute majority of the Afghan people. And as a result of the land and water reforms more than 300,000 peasant families who earlier were landless have already received land allotments. Salaries of workers and employees in state enterprises and institutes have already increased by 26-40 percent on the average. The state is constructing residential buildings and child-care centers and is expanding free medical service. Courses are being organized throughout the country to eliminate illiteracy and more than one and a half

million people have already been taught to read and write in these courses. For the first time in the country's history there are professional unions, a Democratic Youth Organization and a Democratic Organization of Afghan Women, creative unions and other social organizations in the DRA. These together with the NDPA [National Democratic Party of Afghanistan] are forming the National Patriotic Front.

In the international arena the DRA is conducting a peace-loving policy and is striving for friendship with countries, and especially with its neighbors. In statements on 14 May 1980 and 24 August 1981 the DRA proposed to Iran and Pakistan that they resolve all issues at the negotiating tables. Iran as yet has not been able to evaluate the DRA's flexible position. In 1982 Pakistan agreed to enter negotiations with the participation of a personal representative of the UN General Secretary. There have already been several rounds of such negotiations in Geneva. Certainly, direct negotiations between the interested parties would be more effective, but through the mediation of a personal representative of the UN General Secretary it would have been possible to speed up the development of solutions mutually acceptable to the DRA and Pakistan if Islamabad had not been under pressure from Washington.

Is it possible to resolve the foreign policy aspect of the problem? USSR Minister of Foreign Affairs A. A. Gromyko clearly expressed the Soviet point of view on this in his speech to the 39th Session of the UN General Assembly. He stated, "Yes, it is possible. The way to do this is to stop forming, arming and sending anti-governmental bands of robbers and saboteurs into this country from without and to stop interfering in the internal affairs of Afghanistan. There is no doubt that Afghanistan is traveling and will continue to travel along the road that it has chosen, the road to independence, freedom, social progress, peace and non-alliance."

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AFGHANISTAN

BAKU LAUDS LAND DISTRIBUTION IN AFGHANISTAN

GF211930 Baku International Service in Azeri 1300 GMT 21 Feb 85

[Unattributed commentary: "What Are the Changes Taking Place in Afghanistan's Countryside?"]

[Text] Dear listeners, another 400 peasants in northern Jowzjan Province in Afghanistan have received land certificates. A convoy of machinery is proceeding on the dusty and winding roads in Jowzjan Province. Representatives of the provincial officials and members of the peasant cooperatives which are realizing the land reclamation and irrigation program are also on this convoy. They are traveling from one village to another in (?Aghdja) District to distribute certificates to the peasants--documents which allow them to use the land.

Those who have received the certificates are people who used to serve the feudals and the landlords 8 years ago--people who could not even dream of owning land. Until the April revolution in Afghanistan in 1978, the feudals owned about three-quarters of the land in that country. A total of 500,000 peasant families did not even own a handful of soil. The revolution removed this centuries-old injustice. The populist sovereignty confiscated the land from the landlords. And, with the participation of representatives of the peasants, the land and water reform program was drawn up. Now, not only land but also water is being distributed. Had it not been so, acquiring abundant products under the conditions in Afghanistan would have been impossible.

Over 300,000 peasant families have received land to date. The state is helping new establishments to progress. Equipment, seeds and mineral fertilizers are being made available at favorable prices to those who have received land. Meanwhile, machinery hiring centers are being set up. During cultivation and harvesting seasons, peasants rent tractors and other machinery used for removing weeds from the fields. Adequate funds are also being allocated for repairing old irrigation canals and for constructing new ones. A new irrigation network (?is being built) near Darya-ye Khanabad in Qonduz Province. Powerful technology has been brought to that region from the Soviet Union. Major irrigation systems have also been put into operation in Nangarhar and Ghazni Provinces in Afghanistan with Soviet aid. However, a lot of work has to be done in order to lift Afghanistan's agricultural domain--which is still in its medieval stages--to a contemporary level. Previously, Afghanistan's rural regions did not even benefit from electricity.

Meanwhile, counterrevolutionary bands of robbers, which are being sent into Afghanistan from the other side of the border, are causing great harm. They are setting fire to (?the fields), poisoning (?wells and water resources), and killing those who approve of the land reform and who help realize it.

Such operations carried out by the robbers are seriously obstructing (?development), particularly in the provinces which border Pakistan. Nevertheless, regardless of all this, the effort made by the enemies of the revolution to upset the agricultural domain and subject Afghans to hunger has failed. According to the results of 1984, the harvesting of wheat, rice, barley and sunflower and the picking of fruits in Afghanistan has exceeded estimates. The abundance can be seen in the bazaars and private and cooperative shops.

Peasant Mohammad Sharif of (?Golhana) village had this to say: We are now working for ourselves and for our people. No one is without land in the village any more. Nor are there any hungry people. Our children are attending school. Our life is improving. The residents of our village strongly support the land and water reform program.

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